31

HARYANA VIDHAN SABHA

COMMITTEE

ON

PUBLIC UNDERTAKINGS

(1990-91)

(SEVENTH VIDHAN SABHA)

THIRTY FIRST REPORT

ON THE

REPORTS

OF THE

COMPTROLLER & AUDITOR GENERAL OF INDIA

FOR THE YEARS 1980-81, 1981-82 & 1982-83

RELATING TO

HARYANA STATE ELECTRICITY BOARD

Presented to the House on.....

HARYANA VIDHAN SABHA SECRETARIAT

CHANDIGARH.

1991

ERRATA
TO
THIRTY FIRST REPORT OF THE COMMITTEE
ON PUBLIC UNDERTAKINGS

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COMPOSITION
OF
THE COMMITTEE ON PUBLIC UNDERTAKINGS
(1990-91)

CHAIRMAN

*1. Shri Mangal Sein
†2. Shri Risal Singh

MEMBERS

**3. Shri Des Raj
4. Shri Sardul Singh
***5. Shri Tayyab Hussain
***6. Shri Kishan Singh Sangwan
**7. Shri Narbir Singh
**8. Shri Tek Chand
9. Shri Ram Bilas Sharma
@10. Rao Ram Narain
@@11. Ch. Azmat Khan
@@@12. Shri Maha Singh
£13. Shri Sachdev Tyagi

SECRETARIAT

1. Shri Sumit Kumar, Secretary
2. Shri Shanti Sarup, Under Secretary

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*Expired on 2.12.1990.

†Appointed Chairman w.e.f. 8.2.1991

**Resigned w.e.f. 29.5.1990, 29.5.1990 and 14.11.1990, respectively, on their appointment as Minister of State.

***Resigned w.e.f. 29.5.1990, and 18.7.1990, respectively, on their appointment as Minister.

@Nominated w.e.f. 23.7.1990

@@Nominated w.e.f. 26.7.1990

@@@Nominated w.e.f. 10.9.1990.

£Nominated w.e.f. 17.10.1990 and resigned w.e.f. 14.11.1990 on his appointment as Minister.

NOTE : The Committee for the year 1990-91 was nominated by the Hon'ble Speaker in pursuance of the motion moved and passed by the Haryana Vidhan Sabha in its sitting held on 13th March, 1990, authorising him to nominate the members of the Committee on Public Undertakings for the year 1990-91, on the 30th April, 1990.

INTRODUCTION

I, the Chairman of the Committee on Public Undertakings, having been authorised by the Committee in this behalf, present this Thirty First Report of the Committee on the Reports of the Comptroller and Auditor General of India for the years 1980-81, 1981-82 and 1982-83 in respect of the remaining paragraphs relating to the Haryana State Electricity Board.

2. The Committee orally examined the representatives of the Department/Board.

3. The Committee scrutinised the replies received from the Government/Undertakings contained in the various reports of the Committee. The Committee dropped the recommendations/observations where they felt satisfied with the action taken and made further observations where considered necessary.

4. A brief record of the proceedings of various meetings of the Committee held during the year 1990-91 has been kept in the Haryana Vidhan Sabha Secretariat.

5. The Committee place on record their appreciation of the valuable assistance and guidance given to them by the Accountant General (Audit), Haryana, and his staff.

6. The Cammittee are thankful to the representatives of the Finance Department, Haryana, and the representatives of the Irrigation and Power Department/said Board, who appeared before the Committee from time to time.

7. The Committee are also thankful to the Secretary, Haryana Vidhan Sabha, and his officers/staff for the whole-hearted cooperation and unstinted assistance given to them.

Chandigarh :
The 14th February, 1991.

RISAL SINGH
CHAIRMAN.

REPORT ON THE

REPORT OF THE COMPTROLLER AND AUDITOR GENERAL OF INDIA FOR THE YEAR 1980-81 (PARAGRAPHS 6.7 AND 6.8)

PARAGRAPH 6.7—FARIDABAD THERMAL POWER STATION

6.7.02 Performance of the Station.

The following table shows the performance of the three Power Plants for the five years ending 31st March, 1981 :—

Sr No.	Particulars	1976-77	1977-78	1978-79	1979-80	1980-81
1	2	3	4	5	6	7
1.	Installed capacity (MW)	135	135	135	135	135
2.	Average Load (MW)	60.91	67.70	39.80	48.42	40.44
3.	Anticipated generation as per annual estimates (MKWH)	622.08	699 84	699.84	699.84	699.84
4.	Gross generation during the year (MKWH)	533.590	593.104	348.650	425.351	354.293
5.	Auxiliary consumption (MKWH)	57 196	71.007	47.366	61.026	52.558
6.	Percentage of auxiliary consumption to gross generation.	10.71	11.97	13.58	14.34	14.83
7.	Generation per KW of installed capacity (in KWH)	3952	4393	2582	3150	2624
8.	Percentage of gross generation to :—					
	(a) Installed capacity	45.12	50.15	29.48	35.86	29.95
	(b) Anticipated generation	85.77	84.74	49.81	60.77	50.62
9.	*Maximum demand on the station (in MW)	135	135	135	135	135

1	2	3	4	5	6	7
10.	Plant load factor (Percentage of average load to maximum demand)	45.12	50 15	29.48	35 87	29.95
11.	**Plant utilisation factor (percentage of average load to maximum capacity)	45 12	50.15	29.48	35.87	29.95
12.	Hours of Operation	14,070	17,810	12,610	15,227	11,772
13.	Availability Rate (Percentage of actual operation hours to total hours in a year).	53.5	67 8	48.0	57.8	44.8

An analysis of generation of power by each unit revealed the following :

(i) The generation per KW of installed capacity in respect of the two 60 MW units was too low (as low as 2,009 KWH in respect of Ist unit in 1979-80) compared to the standard of 5500 KWH for new and efficient thermal generating units (more than 10 years old) as laid down by the seventh annual Electric Power Survey (1972)

(ii) The capacity utilisation (Plant utilisation factor) during 1978-79 to 1980-81 was very low as compared to the capacity utilisation during 1976-77 and 1977-78. The Power Economy Committee of the Government of India in 1971 had prescribed the achieveable plant availability at 88 percent of the installed capacity. Against this standard, the plant availability achieved during 1976-77 to 1980-81 ranged between 52 and 79 percent for the 15 MW plant ; between 39 and 69 percent for the first 60 MW Unit and between 27 and 64 for second 60 MW unit.

According to the perfomance review report (June, 1980) of the Chief Engineer, the faulty design of the rotors had resulted in considerable outages of the units (4 to 6 months between May, 1978 and Dec. 1979), the seepage of oil from the G.F. bearing had resulted in short circutting in stator coils and consequently rotor winding got damaged, and due to functioning trouble in coal mills avoidable down time of the unit was increasing. The report also indicated that efferts were centinuously being made to improve the working of the power plant.

*Since the maximum demand in Haryana State had far exceeded the generating capacity created, the installed capacity has been adopted to be the maximum demand of the station,

**Plant utilisation in Bhuswal Thermal Power Station of Maharastra State was 70.70 percent and 70.60 percent, respectively during 1979-80 and 1980-81.

(iii) The consumption of power in auxiliaries was estimated by the Board in the Project Report of the two 60 MW units at 8 percent of the power generated. The actual auxiliary consumption was, however, high (ranging from 10.71 percent during 1976-77 to 14.83 percent during 1980-81) and recorded a steady increase from year by year. The reasons for higher consumption in auxiliaries have not been investigated.

(iv) Power is generated at 11 KV and after stepping it up to 66 KV it is transmitted to 66 KVA Sub-Station, Faridabad for further transmission. Since KWH meter has not been installed at the sub station, the transformation losses could neither be assessed nor investigated. The reasons for non-installation of meter were not on record.

In their written reply, the Department/Board stated as under :—

"(i) The reasons for low generation/KWH of installed capacity in respect of 2 × 60 MW Units at Faridabad Thermal Power Station are : Design deficiencies in some of the main equipments i.e.

1. Coal Mills.
2. Instrumentation system.
3. Valves for Feed Control Attemperation system.
4. Increase in curtis wheel pressure and high axial shift.
5. Ineffective Electro-precipitators.
6. Inexeperienced staff
7. Soot blowing system.
8. Poor quality of coal.
9. Non supply of spare parts by BHEL (being outdated design of Plant).
10. All the problems have been identified and renovation programme for some of the major equipments costing about Rs. 38 crores has beed finalised after discussion with CEA, BHEL & ILK. This programme of renovation works will be implemented in the next 3 years.

In the beginning almost whole of the staff was inexperienced. The staff/officers are now being trained by sending them to different Training Institutes viz. Badeipur etc. A training section at Faridabad has also been set up for the purpose.

The matter regarding replacement of existing hammer mills with drum mills has been discussed at higher level i.e. CEA, BHEL & Planning Commission and approval for their replacement has been accorded. At the time of designing of these new mills, BHEL will also take care of the quality of coal available i.e. Grade C,D,E.

(ii) The detail of outages unit-wise and yearwise are enumerated below :—

1978-79 :

UNIT—I

1. Damage of generator rotor from 18-3-78 to 2-5-78.
2. Boiler tubes failures (thrice) 248-05 hrs.
3. Renovation of coal mills, maintenance of BFP, condensate pump and condenser cleaning from 13-8-78 to 22-8-78.
4. Bursting of diaphragm of 75 MVA Main Transformer from 29-8-78 to 3-9-78.
5. Heavy leakage of coal from coal mills from 29-10-78 to 2-11-78.
6. Overhauling of unit from 11-1-79 to 23-3-79.

UNIT—II

1. Damage of generator rotor from 13-5-78 to 20-11-78.
2. Tube failures (twice) 171-50 hrs.
3. High vibrations in BFP from 22-11-78 to 6-12-78.
4. Damage of I.D. Fan bearing from 9-12-78 to 28-12-78.
5. Governing system problem from 31-12-78 to 5-1-79.
6. Reserve shut down due to availability of excess hydro power from 16-2-79 to 24-2-79.

1979-80

UNIT : I

1 Maintenance of coal mills and furnace from 2-4-79 to 7-4-79.
2. Fire in wind box from 16-4-79 to 18-4-79.
3. Non-availability of mills from 20-5-79 to 29-5-79.
4. High differential expansion from 6-7-79 to 9-7-79.
5. Damage to Drum Safety valve from 6-8-79 to 12-8-79.
6. Ceasing of BFP bearings from 20-8-79 to 28-8-79.
7. Damage to Generator stator and overhauling from 3-9-79 to 22-12-79.

UNIT II

1. Damage to control cables due to accidental fire from 4-4-79 to 8-4-79.
2. Vibrations in F.D. Fan from 7-6-79 to 4-7-79.
3. High exhaust hood temperature of turbine and turbine washing from 21-10-79 to 24-10-79.

4. Non-availability of coal mills from 25-12-79 to 15-1-80.
5. Vibrations in turbine from 18-1-80 to 25-2-80.
6. Tube failure 65—26 hrs.

1980-81

UNIT I

1. Non-availability of coal 1836-23 hrs.
2. Annual overhauling and interlinking with 3rd unit 1239-30 hrs.
3. Tube failures (6 times)-638-42 hrs.
4. Vibrations in BFP 121-30 hrs.
5. Modification of seal of coal mills 182-55 hrs.
6. Damage to I.D. Fan due to poor quality of coal.

UNIT II

1 Non availability of coal 939-10 hrs.
2. Annual overhauling and interlinking with 3rd unit 1533-57 hrs.
3. Tubes failure (3 times) 450-10 hrs.
4. Accidental fire on boiler front 1239-36 hrs.

15 MW

1. Annual overhauling and interlinking with 3rd unit 922-40 hrs.
2. Damage of blades of curtis wheel stage of turbine 1303-40 hrs.
3. Poor performance of cooling tower.
4. Sparking on exciter coil bearing 489-14 hrs.
5. Damage of yellow phase winding of generator 373 hrs.

1981-82

UNIT I

1. Capital maintenance from 15-8-81 to 4-11-81—13th stage blades of HP rotor of turbine shaved off.
2. Vibrations in turbine 415-58 hrs.
3. Damage to I.D. Fan 361-52 hrs.
4. Tube failure (5 times) 364-34 hrs.
5. Thrust bearing pads damaged 280-15 hrs.
6. Non-feeding of coal from coal handling plant 380-43 hrs.

UNIT II

1. Tube failures (11 times) 1082-42 hrs.
2. Vibrations in generator rear end bearing 299.06 hrs.
3. Non-feeding of coal from CHP-275-40 hrs.
4. Plant shut town for mtc. of coal mills and choking of inner bearing of ID Fan 307-19 hrs.

15 MW

1. Vibrations in turbine 840-54 hrs.
2. Problem in Cooling tower 619-17 hrs.
3. Vibrations in thrust bearing of turbine 351 hrs.
4. Non-feeding of coal from CHP-329-17 hrs.
5. Planned shut down for mtc. of coal mills 189-35 hrs.
6. Under loading due to cooling tower deterioration.

1982-83

UNIT—I

1. Tube failures (10 times) 728-38 hrs.
2. Non-feeding of coal from CHP 311.01 hrs.
3. Planned shut down for attending worn out coal mills liners and bed plates 430-10 hrs.
4. Damage to cables due to fire in +4.5 M cable gallery 363-50 hrs.
5. Excessive coal leakages from burners 95.03 hrs.
6. For attending emergent maintenance works like passing in feed Line valves, coal leakages from classifer 131.05 hrs.
7. Low load running due to fatigued superheater tubes.

UNIT—II

1. Capital maintenance from 18-4-82 to 9-7-82
2. Non-feeding of coal from CHP-164.45 hrs.
3. Vibrations in only available BFP 123—50 hrs.
4. Tubes failures (17 times) 1134-07 hrs.

15 MW

1. Renovation of cooling tower and overhauling of the unit from 1-4-82 to 21-8-82.
2. Vibrations in turbine 204—42 hrs.

3. Non-feeding of coal from CHP-221-07 hrs.
4. Superheater tubes failure 54.05 hrs
5. Problem in governor gears 120-40 hrs.

1983-84

UNIT—I

1. Boiler overhauling from 1-4-83 to 11-6-83.
2. Tube failures (6 times) 357-57 hrs.
3. Problem in ID & FD Fan 846-05 hrs
4. Damage of thrust pads of turbine (6 times) 1176-55 hrs.
5. Low load running due to high axial shift.

UNIT—II

1. Boiler overhauling from 20-7-83 to 2-10-83
2. Tube failures (8 times) 459-58 hrs.
3. Non-feeding of coal from CHP 127-02 hrs.
4. Bursting of flange of omega piping of turbine (twice) 218-55 hrs.

15 MW

1. Non-feeding of coal from CHP—849-45 hrs.
2. Reserve shut down (no demand) 256-56 hrs.
3. Tube failures (2 times) 142-00 hrs.
4. Fire in Cable gallery 172-47 hrs.
5. Coal mills problem 115.23 hrs

1984-85

UNIT—I

1. Capital Mtc. from 15-9-84 to 9-2-85 for re-fixing of 13th stage bledes, sand blasting of turbine rotors, replacing of thrust collar and boiler over hauling and thereafter testing and commissioning.
2. Tube failures (12 times) 579-33 hrs.
3. Low load running due to high axial shift.
4. Coal mills problems 222-46 hrs.
5. Problem in ID & FD Fans 525-20 hrs.
6. Damage of thrust pads of turbine 328 hrs.

UNIT—II

1. Tube failures 18 times 883-57 hrs.
2. Coal Mills problem 991-31 hrs.
3. ID Fan/Fd Fan problem 288-19 hrs.

15 MW

1. Tube failures (5 times) 322-30
2. Coal Mills problem 585-16 hrs.
3. Non-feeding of coal from CHP-97-16 hrs.
4. Ash scrapper problem 59-50 hrs.
5. Condenser cleaning 334-14 hrs.
6. Leakage in condenser tube 204-55 hrs.
7. 11 KV interlinking cables problem 39-17 hrs.
8. Low load running due to poor condenser vaccum.

(3) The details of outages resulting in reduction in operating hrs. are covered in para 2 above.

Operating hours of 2×60 MW and 15 MW from 1981-82 to 1984-85 are given as under :—

	1981-82	1982-83	1983-84	1984-85
Running hours	15275	13962	15090	15201

The reduction in operating hours in the year 1982-83 are due to capital overhauling of Unit-II for three months and for renovation of cooling tower of 15 MW for 5 months.

4. The position of the working of the Plants in the succeeding years has not improved due to the design deficiencies of the equipments already explained above, viz. poor quality of Coal, Heavy Erosion of Milling system, Boiler Flue Gas Duct, I.D. Fans Impeller etc. Bad quality of Raw Water resulting into poor vaccum in the Condensers, inadequate capacity of the Cool Handling Plant, Coal flow problems in the Raw Coal Bunkers, Damage of BFP Motors, indiscipline of staff. inadequate training facilities, shortages of critical spares from the main equipment suppliers, non-availability of improved spare parts being out dated.

5. All the problems have been identified and a renovation programme for some of the major equipments costing about Rs. 38 crores has been finalised after discussion with C.E.A., BHEL & ILK. This programme of renovation works will be implemented in the next three years With the implementation of renovation works, the Plant performance is expected to improve considerably

The reasons for higher consumption of power in auxiliaries has been investigated. It is pointed out that auxiliaries consumption is directly

related to the generation of power. In case, the generation is low the auxiliaries consumption in percentage would be higher. Most of the time, the units are operated on partial load due to the constraints mentioned in para above. All the auxiliaries are required to run even when the unit is on partial load However, the auxiliaries consumption at this power station is comparable with auxiliaries consumption at other power stations of similar capacity. The steps have been taken to analyse the higher auxiliaries consumption by monitoring consumption by individual auxiliary and shutting down the unwanted auxiliaries when the unit is out. The auxiliary consumption is expected to come down with the increase in generation in the coming year.

6 It is not necessary to instal the meter as the transformation losses are quite negligible. Provision of metering for 66 KV side is quite costly and uneconomical Moreover, it is a common practice to instal metering equipment on the generation end."

In written reply to supplementary questionnaire, the Department/Board stated as under —

"(i) The renovation scheme of Faridabad Thermal Power Station covered under Central Plan (Estimated expenditure 1159.98 lacs) and State Plan (Estimated expenditure Rs 1938.50 lacs) was commenced in 2/85. Under Central Plan there are 56 activities An expenditure of Rs. 1136.37 lacs has been incurred on Renovation Schemes to end of 3/89 and Rs. 71.87 lacs is likely to be incurred during this year. Out of 56 activities, 35 activities have since been completed. Out of remaining 21 activities, 11 activities are under execution and are likely to be completed in this year and next year at a total cost of Rs. 79.13 lacs Out of balance 10 activities, 5 activities have been dropped and about 5, decision is yet to be taken.

Under the State Plan, there are 11 activities out of which 4 have been completed on which an expenditure of Rs. 44.28 lacs has been incurred to end of 3/89. An expenditure of Rs. 38.41 lacs is likely to be incurred on these during this year. Six activities are under execution. Total cost of these activities is 1732.24 lacs (Rs. 445.24 lacs incurred upto 3/89). One activity has been deleted due to phasing out of 15 MW set. xxxxxx

(ii) The total expenditure incurred on Renovation & Modernisation Programme upto 31-3-89 and projections for the years 1989-90 and 1990-91 are given below :—

	Total projection	Projection for the year 1989-90	1990-91	Expenditure upto 88-89	4/89 to 7/89
	(Rs. in Lacs)	(Rs. in Lacs)		(Rs. in Lacs)	
Central Plan	1159 98	71.87	7.26	1136.37	8.86
State Plan	1938.50	699.37	626.16	489.52	444.10
	3098.48	771.24	633.42	1625.89	452.96

(iii) Existing hammer type, mills installed in 60 MW Unit-I and II at Faridabad Thermal Power Station have not been replaced with Tube Mills under the R & M Scheme as M/S BHEL did not stick to its originally indicated prices as per scope of supply of the offer. This resulted in cost escalation from earlier estimated value of Rs 12.75 crores to about 22.00 crores and C.E.A. adjudged the activity to be techno-economically not viable. As a result of this conclusion the order placed on M/S BHEL in 9/87 has been cancelled.

Meanwhile by the installation of high capacity seal Air Fan system at an expenditure of Rs. 16.59 lacs on existing Hammer Type Mills of Unit-I & II under R & M Scheme by M/s BHEL, the problems experieneed earlier in maintaining hammer mills, have been overcome and improved P.L.F. has been achvieved.

During the course of oral examination, it was stated by the departmental representatives that out of 56 activities under the Central Plan, 43 had been completed, 8 were under execution out of which some would be completed this year and the rest by the end of next year Five activities had been dropped. Under the State plan, six activities out of 11 were still under execution.

It was further stated that as the R & M activities progressed the P.L.F. improved as was evident from the percentage figures given below :—

	Unit-I	Unit-II	Unit-III	Total
1983-84	19.61	29.74	34.51	27.95
1984-85	14.72	37.90	31.17	27.93
1985-86	28.78	25.18	21.61	25.19
1986-87	38.15	35.73	58.36	44.08
1987-88	46.02	53.27	36.96	45.42
1988-89 i)	35.28	30.05	44.96	36.77 (actual)
ii)	43.58	30.26	50.80	41.55 (deemed)
1989-90	47.14	59.62	30.38	45.71

It was stated that the fall in PLF during 1988-89 was mainly due to backing down of the units I & III due to surplus power for 45 & 30 days, respectively. In case loss of generation because of backing down of the units was taken into consideration, the overall PLF of the station worked out to 41.55 per cent. The comparatively slightly lower PLF was on account of problems faced in Unit-II after installation of modified ejectors during overhauling of the unit, which were supplied by BHEL under one of the R & M activities. Another significant outcome of the R & M activities was the substantial reduction in oil consumption much below the national average and a decline in coal consumption.

It was further stated that there had been further appraisal of the plant during November, 1989. Based on this exercise another R & M programme consisting of 13 activities with estimated cost of Rs. 10.05 crores had been proposed. The scheme had been economically cleared by CEA for implementation during 8th plan.

When asked about the reasons for spurt in expenditure of Rs. 444.10 lacs under the State plan during the period 4/89 to 7/89, as compared to the

expenditure of Rs. 489.52 lacs during the year 1988-89. It was stated by the representative of the department that the figure of Rs. 444.10 lacs was a typographical mistake and actually this figure was Rs. 151 13 lacs

The Committee desire that the latest position of execution of remaining activities under the Central and State Plans and the furth r achievement made in PLF as a result thereof be intimated to the Committee

The Committee further desire that before any information was supplied to the Committee it should be thoroughly compared and checked so that the embarrassement caused to the department/Board later and the time of the Committee, was saved

6.7.04 (a) Fuel Consumption

2. The turbine suppliers have guaranteed the following heat rates at varying loads on the generating sets :—

	60 MW PLANT		15 MW PLANT	
Load in M.W.	60	55	39	9.5
Guaranteed heat rate (K.Cal/KWH).	2367	2357	2414	2745

According to the supplier's plant design, the more the load on the plant the lesser is the heat rate required in generation During the years 1977-78 to 1980-81; the average load on 15 MW Plant and two 60 MW units ranged between 9 MW to 11 MW and 40 MW to 49 MW, respectively. Based on the heat rate of 2745 K.Cal/KWH guaranteed for a low load of 9.5 MW in respect of 15 MW power plant and 2414 K. Cal/KWH guaranteed for a low load of 39 MW in respect of 2x60 MW Power Plants, the excess consumption of fuel in terms of coal during 1977-78 to 1980-81 worked out to 5.20 lakh tonnes, valuing Rs. 950.73 lakhs as shown in the table below :—

			1977-78	*1978-79*	*1979-80*	*1980-81*
1.	Actual heat rate (K.Cal/KWH).	a)	5610	4981	5313	4874
		b)	3909	4035	4226	3594
2.	Stipulated heat as per standard adopted (K.Cal/KWH).	a)	2745	2745	2745	2745
		b)	2414	2414	2414	2414
3.	Excess heat consumed 1(—) 2(K.Cal/KWH)	a)	2865	2236	2568	2120
		b)	1495	1621	1812	1180
4	Percentage of excess consumption over stipulated heat rate (percent).	a)	104.4	81.5	93.6	77 2
		b)	61.9	67.15	75.1	48.9
5.	Total units generated (MKWH)	a)	73.907	64.089	60.340	43.438
		b)	519.197	284.561	365.011	310.855
6.	Average calorific value of coal (K.Cal/Kg.)	a)	5846	5651	5665	4607

			1977-78	1978-79	1979-80	1980-81
7.	Excess fuel consumed in terms of coal (tonnes) (3x5÷6)	a)	36220	25358	27401	20073
		b)	132774	81627	116958	79620
8.	Estimated cost of coal (Rs./tonne) as per operation & maintenance estimate.		170	165	175	235
9.	Cost of excess fuel consumed (Rs. in lakhs)	@	287.29	176.53	252.63	234.28

(a) Indicates the 15 MW lower Plant.

(b) Indicates the 2x60 MW Power Plant.

@ Based on rates of coal as per yearly estimates.

The Thermal Power House has been linked for coal supply with Singrauli coal fields. The boilers of the existing 2x60MW units have been designed for use of a wide range of coal of Grade I to II having calorific value in the range of 5280—6170 K. cal/Kg. with ash contents ranging from 15 to 22 per-cent. Although the actual calorific value of coal used compared favourably with the designed calorific value of coal, yet the consumption of coal far exceeded the norms.

In their written reply, the Department/Board stated as under :—

"(a) The figures of excess of 5.20 lakhs tonnes of coal during the year 1977-78 to 1980-81 has xxx been worked out by taking into account the designed heat rate of the turbo-set only whereas heat rate of the unit also includes the efficiency of the Boiler. The designed values of the heat rate of the unit will increase when efficiency of the Boiler is taken into consideration. Moreover, the design figure of heat rate of turbo set are based on zero make up and normal operating parameters i.e. superheated steam pressure and temperature deaeration of condensate, temperature of cooling water condenser back pressure, curtis wheel pressure, outage of HP heaters and in case of deviation of any of the parameters the heat rate becomes high. Even the boiler efficiency depends upon many factors like proper conbustion, running of units on partial load, high outlet flue gas temperature and unburnt coal in ash, the frequent outage of the coal mills for replacing hammers results into partial load operation. The number of trippings also increase which ultimately lowers the unit efficiency and increase the heat rate of the unit. Further more, the boiler is designed for specific quality/grade of coal, but in actual practice, there have been wide variation from the designed quality of coal particularly in clorific value, ash contents, volatile matters, hard groove index. Due to the poor quality of coal not only the consumption per KWH goes up, but it also causes great wear and tear of the equipment resulting into more maintenance and down time of the units. The procedure for

measurement of coal quantity consumed was also not fool-proof and there has been erratic behaviour of cool weighing system due to deposition of ccal dust and other technical reasons. This is borne out from the fact that surplus coal as per details given below taken on books .—

Year	Surplus coal taken on books.
1980-81	18503.58 M.T.
1979-80	66469.665 ,,
1978-79	12919.45 ,,
1977-78	33808.821 ,,
	1,31,701.446 ,,

The above figure has to be deducted in the quantity of coal consumed over the above years. After taking into account the surplus coal over the 4 years mentioned above the coal consumption comes out to be .64 Kg./KWH. Thus it will be observed that there is no excess consumption of coal except on account of the reasons explained above."

In reply to supplementary questionnaire, the Department/Board stated as under .—

"(i) Boiler efficiency of 2×60 MW Units at 83.5%, the heat rate of the (2×60 MW) Units works out as under :—

	At 60MW	At 55MW	At 39MW
(a) Designed Heat Rate of T.G. (K. Cals/kwh) (Input to T.G)	2367	2357	2414
(b) Designed efficiency of Boiler	83.5%		
(c) Designed Heat Rate of Unit (K. Cals/kwh) (Input to Boiler)	2835	2823	2891

(ii) Since Unit-wise stacking of surplus coal was not possible there being common coal yard and coal handling plant, the Unit-wise calculation could not be done. The coal consumption during the years 1977-78 to 1979-80 after taking into account surplus coal year after year works out to 0.64 Kg./kwh, which is considered reasonable. Since the plant had some inherent defects, the consumption of coal would have been much more, in case the coal supplied had lesser calorific value.

(iii) After taking into account the surplus coal (surplus coal means coal rejected by Mills received on emptying bunkers and cleaning of mills on tipping etc. which stood accounted for in consumption but sent to coal yard), the coal consumption works out to 0.64 kg./kwh as per details furnished below. Thus, it will be observed that there is no excess consumption of coal.

The detail of calculations of 0.64 Kg./kwh for the year 1977-78 to 1980-81 is given as under :—

Year	Generation (MU)	Gross coal consumption (MT)	Surplus coal taken on books (MT)
1977-78	593.1044	403217 53	33808.821
1978-79	348.6506	248083.965	12919.45
1979-80	425.3512	313384.70	66469.665
1980-81	354.2934	272447.86	18503.510
Total :	1721.3996	1237134.055	131701.446

The net coal consumption for the year 1977-78 to 1980-81 works out to :—

1237134.055—131701.446=1105432.609 MT.

Hence net specific coal consumption $= \frac{1105432.609 \text{ MT}}{1721.3996 \text{ MU}} = 0.64$ Kg/kwh."

When asked about the reasons for the inherent defects in the plant, it was stated by the representative of the department during the course of oral examination that Turbine and Boiler equipment of Units I & II installed at Faridabad were supplied by BHEL as per the design of their Czech/Russian collaborators. In case of 60 MW Unit-III which was commissioned in 1981, the boiler is of C. E. (U.S.A.) design but equipment on the turbine side is again of Czech design. The instrumentation for 60 MW unit I & II was also supplied by Instrumentation Ltd. Kota based upon the Russian design. BHEL and ILK obtained know how from Czechlovakia/Russia as per agreements then entered into. The main problems faced in the working of the plant after few years of its commissioning were non-availability of spare parts of Russian instruments, poor performance of Hammer type coal mills, passing through valves and frequent non-functioning of electrostatic precipitators. The deterioration in quality of coal also affected the performance of the plant.

It was also stated that the defects in the 60 MW plant were not isolated to the Faridabad plant alone but to all such plants installed all over the country at that time, which resulted in the formulation of R & M scheme on the basis of remedial measures suggested by a team constituted by the Government of India and consisting of representatives of BHEL, ILK, CEA and Project during 1984, which was approved for implementation during early 1985.

The Committee recommend that the implementation of the R & M Programme be expedited to improve the working of the plant for increasing generation of power and effecting economy in consumption of raw materials.

6.7.11 Other topics of interest

3. (i) Cooling tower's deficiency

The order for design, manufacture, supply, erection, testing and putting into satisfactory commercial operation of the two induced draft cooling towers for the two 60 MW Units of Thermal Power Project, was placed on a firm in May, 1972. The order provided for levy of liquidated damages of Rs. 50,000/- for every 0.5 C or part thereof increase in the recooled water temperature over the designed requirements. The construction of the two cooling towers was completed in August, 1974 and May, 1975, respectively. Whereas the performance test for Tower No. 1 was conducted in May, 1975 no performance test was conducted for the second cooling tower. The test results of the first cooling tower revealed that the flow of water was 9450 M/h against the guaranteed flow of 10,600 M/h and the cold water temperature obtained was higher by 1.3 C than the guaranteed cold water temperature. When the contractors failed to improve the performance, the Board in April, 1980, imposed a penalty of Rs. 2 lakhs (Rs. 1.00 lakh for each tower) on the assumption of 1 C increase in temperature in each tower. As per contract, a penalty of Rs. 1.50 lakhs was leviable for Tower No. 1, whereas the extent of penalty leviable for second tower was not known since no performance test was conducted. The amount had, however, not yet (June, 1981) been recovered.

In the flow of water also, 10 percent variation was allowable and though the shortfall in this regard exceeded the tolerance limit, no penalty for this shortfall was levied as the same was not contemplated in the contract

The Head Store Keeper of Operation and Mts. Stores was relieved of his charge on 17th September, 1980 (on his promotion as Stock Verifier), without handing over complete charge of Stores The official who was asked to hand over the charge in November, 1980, expressed his inability to hand over the charge of caustic soda on the ground that the soda was partly lying with the Chief Chemist who had been using the same without issuing store requisition slips. The item was physically verified (25th Nov 1980) by the Executive Engineer (Stores) Assistant Executive Engineer (Stores) and relieving Head Store Keeper and shortage of 13,200 kgs. of caustic soda valuing Rs. 0 23 lakh was noticed. On being advised of this shortage, the concerned official stated (Dec. 1980) that 4 to 5 wagons of caustic soda were unloaded during 1978-79 in the water treatment plant due to shortage of space in Operation and Maintenance Stores without his knowledge and that he took the material on stock at the instructions of the Asstt. Executive Engineer (Stores) without counting and that the material was used by the staff of Water Treatment Plant without issuing store requisition slips and hence no issuing entry could be made in the stock ledger

On receipt of the reply, the Executive Engineer, Stores (Operation and Maintenance) recommended in December, 1980 a departmental enquiry to investigate the shortage. Further report was awaited (Nov. 1981).

The matter was referred to Government in October, 1981, reply was awaited (March, 1982).

In their written reply, the Department/Board stated as under :—

(i) "As per the terms of the contract the performance test on only one cooling tower was envisaged as both the cooling towers were identical and therefore no performance test on 2nd cooling tower was done

(ii) The security and final payment has not been made and the penalty would be recovered from the contractor from their final payments.

(iii) The cold water temperature during the test was found to be higher by 1.3 C than the predicted cold water temperature on the basis of performance curve as against tolerance of + 0.3 C as per P.O. Allowing this tolerance panalty was calculated @ Rs. 50,000/- per .5 c equal 1 lac of rupees

iv) The figure of flow of 9450 metre cubic per hour is based on the particulars parameters at that time and worked out from loading machine and condensor performance and this had to be corrected to take care of other loss The equivalent flow calculated by C.E.A. came to be 10,900 Metre Cubic Per Hour. Hence the flow is not short

(v) The case is still under investigation."

In reply to a supplementary question, the Department/Board stated as under .—

"The enquiry regarding shortage of 13 2 MT caustic soda costing Rs. 36,171/7OP has been completed on 5-5-1989 and Sh. Narain Dass Ahuja, Ex-stock Verifier (Retd.) and Sh. V.K Aggarwal, AEE (Now Xen) have been held responsible for the shortage. The amount has been placed in PW Misc Advances of both the officials The Chief Engineer (Workshops) Dhulkote has been requested to initiate recovery proceedings against Sh. Narain Dass Ahuja, Ex-stock Verifier. The matter regarding fixation of responsibility of the Supervisory officer is under active consideration of the Project Authorities."

During the course of oral examination, it was stated by the representative of the department that recovery of 50% of the amount of shortages had been made from the leave enchashment paid to Shri Narain Dass Ahuja Ex-Stock Verifier (Retd). So far as Shri V. K. Aggarwal, AEE (now Xen) was concerned, the Chief Engineer/Thermal Faridabad reviewed the case on receipt of his explanation, and ordered that since the shortage had taken place during the tenure of Shri S. L. Gupta, AEE (now Xen PTPP), he was responsible for the shortages instead of Shri V. K. Aggarwal. Accordingly show cause notice served upon Shri Aggarwal had been withdrawn and issued against Shri S.L. Gupta on 8-5-1990. It was also stated that the following officers had been found responsible for causing delay in completion of the enquiry in this case—

1. Shri C. L. Chitkara, Xen/MM
2. Shri S. P. Dhingra, SE/Mtc (Retired)

3 Shri J. L. Arora, the then SE/BPM

4. Shri L. R. Nangia Manager (P & A)—Retired.

5 Shri Hari Kesh Dahiya Sr. A O.

and show cause notices had been issued to all the officers except Sarvshri Dhingra and Arora, who had since retired.

It was also stated that four officers had conducted the enquiry from time to time before it was completed.

The Committee are pained to observe that the Board inordinately delayed the process of enquiry aginst the defauling officials, which was initiated in 12/80 and completed in 2/90.

The Committee recommend that action be also taken against the Enquiry Officer who held Shri V.K Aggarwal responsible for the shortages when subsequently it was found that instead of him Shri S. L. Gupta was responsible as it showed that he gave his findings without properly going into the matter and applying his mind The action so taken against the Enquiry Officer at fault be intimated to the Committee.

The Committee further recommend that the action against the officers who had been served with show cause notices for the delay in completing the enquiry be expedited and the result intimated to the Committee.

The Committee would like to be informed of the recovery made from Shri S. L. Gupta, AEE (now Xen PTPP)

The Committee would also like the Board to streamline the snags in the process, if necessary in consul ation with the Finance Department, so that enquiries are completed speedily and the guilty brought to book promptly.

Paragraph 6.8—Steel Structure Fabrication Workshop

6.8.05 Inventory Control

i) Completed jobs

4. The table below indicates the position of inventory of completed job during the four years ending 31st March, 1981 :—

	1977-78	1978-79	1979-80	1980-81
		(Rs. in lakhs)		
Opening stock	Nil	16.99	16 70	24.05
Production during year	32.48	16.57	37.19	59.47
Despatches during year	15 49	16 86	29.84	38.00
Closing stock	16.99	16 70	24.05	45.52

The closing stock as on 31st March, 1981 which was awaiting despatch to the divisions included structures fabricated in earlier years also as shown below :—

Year of fabrication	Value (Rs. in lakhs)
Prior to 1977-78	0.56
1977-78	0.80
1978-79	7.56
1979-80	17.51
1980-81	19.09*
Total :	45.52

*Includes structures costing Rs. 0 31 lakh fabricated during 1977-80 but painted in 1980-81.

The Workshop authorities stated (June, 1981) that vigorous efforts made by them to induce the Divisions to expedite the lifting of material had not been fruitful and the closing stock of finished goods was increasing year by year

In addition, semi-completed strucutures of the value of Rs. 51.76 lakhs were awaiting completion (July, 1981) reportedly due to the non-availability of critical sections of steel.

(ii) Raw Material

The following table indicates the value of opening stock receipts consumption and closing stock of raw-material (steel) at the close of the four years ending 31st March, 1981 :—

	1977-78	1978-79	1979-80	1980-81
			(Rs. in lakhs)	
Opening Balance	Nil	10.62	12.96	19.04
Receipt during the year	31.57	6.83	19.89	84.92
Consumption during the year	20.95	4.49	13.81	35.21
Closing balance at the end of the year	10.62	12.96	19.04	68.75
Closing balance in terms of months consumption	6.1	34.6	16.6	23.4

It will be observed from above that closing stock at the end of 1980-81 had increased considerably. The workshop authorities stated (June, 1981) that the raw material stocked was required for execution of pending job orders received in 1979-80 (875 tonnes) and 1980-81 (850 tonnes). It was seen that out of steel valued Rs 68 75 lakhs held as on 31.3 1981, steel valued Rs. 47.63 lakhs was meant to be consumed against these orders It was further stated that the stock had increased owing to receipt of steel from the Central Stores due to shortage of space at that place

In their written reply, the Department/Board stated as under :—

"(i) All the semi-completed structures have been completed/issued to the concerned divisions.

(ii) The month-wise progress report have been sent regularly to the Chief Engineers/Field Officers for lifting the ready material through allocations of C.E (P&C). Secondly the material have been fabricated in Workshop according to the work orders issued from time to time by C.E. with the hope that the material will be lifted immediately.

The value of manufactured material held at present in this Workshop was of the value of Rs. 1 34 crores as on 31-3-85 lying ready at Panipat Workshop

(iii) The jobs in the workshop are undertaken on the basis of work orders received from C.E. P&C for the construction of transmission lines and Sub-Station strucutures. Some of the works could not be executed as per plans resulting in non-lifting of fabricated material

(iv) The stores are drawn as and when required for fabrication".

In reply to supplementary questionnaire the Department/Board stated as under :—

"(i) The jobs in the workshop are undertaken on the basis of work orders received from Construction Organisation for fabrication of Transmission Line Towers and Sub-Station Structures. As some of the matching works as provided in the plan then could not be executed, the material required for these works was not lifted.

The fabricated material valuing Rs. 1 34 crores lying in workshop as on 31-3-85 has now come down to Rs 67.73 lacs as on 31-3-89. It will further get reduced by Rs. 25 lacs approximately in the coming months as the Chief Engineer (Design) has since allocated about 120 Nos. 66 KV Single Circuit Towers lying manufactured in the workshop.

(ii) The Board has not fixed any minimum/maximum stock limit. The steel required during the year is purchased as per requirements",

It was stated during the course of oral examination by the departmental representative that the cost of material now lying in stock was Rs. 7.50 lacs.

The Committee feel that in any commercial organisation, the control of inventory is of paramount importance and has to be given due attention while planning financial and administrative arrangements to ensure proper running of the organisation.

The Committee, therefore, recommend that the maximum and minimum stock limits in all areas of stock holding of spare parts should be fixed within a specified time and the stocks brought down within the limits fixed.

6.8.07 Other Topics of Interest.

5. Extra expenditure in fabrication of zinc baths.

(a) In response to tenders invited in December, 1978 (opened in January, 1979) for fabrication of one/two sets of zinc-baths required for galvanising Plant of the Workshop (M.S. Plates to be supplied by the Board free of cost), the comparative/equated rates per set of three firms-viz. 'A', 'B' & 'C' were Rs. 0.74 lakh, Rs. 0.77 lakh and Rs. 1.34 lakhs, respectively. Firm 'C' which was the highest tenderer contended that it was the leading manufacturer in India for fabrication of zinc baths and practically all big galvanisers in the country were using the Zinc-baths manufactured by it. It also invited the Board's officers to inspect its Works and other credentials.

However, order for fabrication of one set only was placed (April, 1979) on firm 'A' being the lowest for the reasons that the Board had completed foundations for one set of bath only. The firm, however, in August, 1979 demanded an increase in the price by 25% since the Board took four months after the placement of the order to supply M.S. Plates and approve the drawings. This was rejected by the Board (Sept. 1979). The firm was ultimately black-listed in October, 1979.

Since the Board could not settle the terms with firm 'B', the second lowest tenderer, a fresh Enquiry was floated in Feb. 1980 against which firm B&C and another firm 'D' responded, and their equated rates per set were Rs. 0.94 lakh and Rs. 1.95 lakhs and Rs. 1.42 lakhs, respectively.

The premises of all the three firms were visited (March, 1980) by the Addl. C.E. and the Executive Engineer of the Workshop, who reported that firm 'B' & 'D' did not have the bending and stress relieving arrangements, whereas firm 'C' had all the arrangement and had supplied Zinc-baths to various Organisations. Still, the order was placed in May, 1980 on the lowest tenderer (Firm 'B'). However, when a dispute about the payment terms arose with the firm, a Sub-Committee was appointed August, 1980 to visit the firms 'C' & 'D'. The Committee was also authorised to recommend the name of the firm which had complete know-how, tools and machinery etc. The Committee recommended for the cancellation of the order placed on 'B' and placing the order on 'C' stating, "as a matter of fact, the position is that firm 'C' are the only

manufacturers of Zinc-baths in Northern India with know-how and experience of manufacturing Zinc-baths and are excuting orders for Northern India concerns." An order was then placed on firm 'C' in Nov. 1980, for fabricating 2 sets of Zinc baths at the rate quoted by it in February, 1980 (Rs. 1.95 lakhs each) after cancelling the order placed on firm 'B'. Had the technical and other capabilities been ascertained in the first instance (Dec. 1978) as was done at the time of scrutinising the tender against the second Enquiry and order placed on firm 'C' in Jan. 79, an extra expenditure of Rs. 1.22 lakhs could have been avoided.

(b) The M.S. Plates required for the fabrication of Zinc-baths were to be supplied by the Board and were to be ultrasonically tested by the firm 'C' at Panipat/Ballabgarh. The ultrasonic test conducted by the firm revealed that out of six M. S. Plates, three (cost Rs. 0.63 lakhs) were defective. The issue regarding supply of defective M. S. Plates had not yet been taken up with the suppliers (July, 1981)

In Dec. 1980, firm 'C' informed the Board that the order for two sets of baths at the prices agreed would hold good if they receive the balance material for the second set of baths by the middle of March, 1981 and if it was not possible for the Board to arrange the necessary defect-free plates by that time, the price for the second set would be subject to negotiations. The defect-free M.S. Plates had not been supplied so far (Nov., 1981).

The matter was reported to Govt. in October, 1981; reply was awaited (March, 1982).

In their written reply, the Department/Board stated as under :—

"(i) * * * * * *

As a matter of fact the tenders were invited in two parts and the technical part was opened first to determine the technical suitability of the offers and three out of six tenders were not opened because of their being technically unsuitable. The order was placed on the lowest tenderer and this order was not cancelled because of the technical incompetence of the firm but it was due to some dispute about the commercial terms. After the placement of Order, the firm 'A' had demanded a price increase of 25% which was not acceptable. The Work Order was, therefore, cancelled and the firm black-listed.

(ii) Against the second Tender Enquiry, the order was placed on firm 'B' keeping in view the rates received against the Enquiry and technical aspects. The work order with firm 'B' also did not mature because of dispute about certain commercial terms such as furnishing of bank guarantee equal to the cost of M. S. Plates and withholding 25% of the payment and it was because of these disputes, the work order with this firm had to be cancelled and ultimately placed on firm 'C' who finally carried out the work.

(iii) Out of 6 No. Plates received for the purpose of fabrication of Zinc-baths, 3 Nos. were found defective on their ultrasonic testing. However, the remaining three plates were found fit for the fabrication of baths. For the purpose of fabricating one out of two sets, the firm intimated that department can supply two Plates which have passed the ultrasonic test and one out of the three which did not pass the test completety, which was done accordingly. There was no question of replacing the defective plates for the fabrication of first set of Zinc-baths. The fabrication of second set of zinc-baths is still to be taken up.

(iv) At no stage the Board agreed to pay any escalation charges on account of delay in supply of M. S. Plates as demanded by the firm from time to time.

(v) One set of Zinc baths has been fabricated, installed and commissioned during 11/83. The fabrication of second set of zinc bath is still to be taken up."

In reply to supplementary questionnaire the Department/Board stated as under :—

"(i) Against first inquiry (floated in Dec., 1978), tenders were invited in two parts. The technical part was opened first to determine the technical suitability on the basis of the offers submitted by them and the first lowest was considered technically capable of executing the order on the basis of the information supplied. The second part of the tender containing price bid of three out of six tenderers who were considered technically suitable was opended and the order was placed on the 1st lowest technically suitable firm 'A'. But when M. S. Plates (50mm) were offered to them by S. E./Workshop in August, 1979, the firm reacted by raising their price by 25%, which was not acceptable. The work order was, therefore, cancelled and the firm black-listed. Their earnest money of Rs. 300/- was also forfeited in 2/80.

In response to 2nd Tender Enquiry, the order was placed on firm 'B' being the lowest and technically suitable. The firm, however, could not execute the Bank Guarantee even after its amount was reduced from Rs. 1.20 lac to Rs. 0.75 lac towards the cost of M. S. plates to be supplied by the Board for one Zinc Bath. Under these circumstances, the work order placed on this firm had also to be cancelled and their Earnest Money of Rs 1000/- forfeited.

It is only after cancellation of order on firm 'A' and 'B' for the reasons as given above that a Committee to ascertain the financial and technical capability of various firms against second tender enquiry was formed who after visiting their works opined that it was the firm 'C' only who is capable of manufacturing of Zinc Baths and has got the know how and exprience of manufacturing and had executed orders for Zinc Baths in Northern India. It was on the basis of recommendations of the Committee (formed in August, 1980) that order on firm 'C' was placed. The order was not placed earlier on this firm as it was costlier than the first two offers.

(ii) M.S. Plates were to be received from Rourkela through M/s Steel Authority of India Ltd. and these plates were actually received in July/

August, 1979. Immediately on receipt of material in Faridabad Stock-Yard, the S. E. Workshop contacted the firm vide his Memo dated 8.8.79 for delivery of the same to the firm 'A'. But the firm reacted by raising their price by 25% Thus, none can be held responsible for delay in supply of M. S. Plates to the firm.

(iii) Since the 50 mm size plates were neither available in the market nor with the manufacturers, the same were used after removing defective portion. The quantity of M.S. Plates containing minor defect being very small and could still be used, the matter was not taken up with the supplier. The order placed on the firm also did not provide for ultrasonically tested plates. After accounting for the M. S Plates used by the manufacturer in manufacture of Zinc Bath a sum of Rs 6692/- on account of 2.109 M.T. M. S. Plates or its scrap @ Rs. 3173/-per M.T. less returned has been recovered/adjusted from the Manufacturer against Vr.No. 139 dated 31.12.1987. The manufacturer is however not satisfied with the above recovery/adjustment.

(iv) Since the M.S Plates of 50mm, thickness for the 2nd Zinc Bath were not available at that time, the second Zinc Bath could not be got fabricated. Now the 2nd Zinc Bath is not required keeping in view the work load. The Board has not suffered any loss on this account."

The Committee desire that the Board may evolve a procedure whereby before placing an order it may ensure the genuineness and competence of the firm to execute the order.

REPORT ON THE

REPORT OF THE COMPTROLLER AND AUDITOR GENERAL OF INDIA FOR THE YEAR 1981-82 (PARAGRAPH 6.7)

Paragraph 6.7—**Performance and achievement under 5th Five Year Plan**

6.7.02. (i) & (ii) *Resource and Finance & Commercial loss*

6.(i) The table below indicates the resources proposed to be mobilised for the purpose of generating the requisite funds for the Fifth Five Year Plan period as well as the Annual Plans for 1979-80 to 1981-82 and the extent to which the resources could actually be mobilised :

Source	Fifth Five Year Plan (1974-79)		(1979-80)	
	Estimated receipts	Actual	Estimated receipts	Actuals
	(In crores of rupees)			
External (from Government, LIC, Banks, Public)	2,58.76	2,75.64	65.75	66.29
Internal(depreciation, reserves, consumers security)	31.95	31.74	1.50	1..46
Total	2,90.71	3.07.38	67.25	67.75

	Annual Plan			
	1980-81		1981-82	
	Estimated receipts	Actuals	Estimated receipts	Actuals
	(In crores of rupees)			
External (from Govt., LIC, Banks, Public)	73.85	88.65	1,04.21	1,02.02
Internal(depreciation, reserves, consumers security)	1.25	1.48	3.00	3.10
Total	75.10	90.13	1;07.21	1,05.12

After a study of the working of various State Electricity Boards, specially with regard to the generation of internal resources the Central Electricity Authority (CEA) in August, 1978 emphasised that the State Electricity Boards should not only be financially solvent but should also meet a reasonable part of their capital requirement through internal resources. In this context, the CEA considered a percentage of around 20 to 25 of the annual programme to be an appropriate target of internal resources generation. To achieve this end, a time bound programme of 4 to 5 years so as to generate 5 to 8 percent increase in internal resources over the previous year of performance was suggested. But instead of coming up to these expectations, the percentage of internal resources actually diminished during 1979-80, 1980-81 and 1981-82 compared to the fifth plan period, as would be seen from the table below —

Year	Actual capital outlay	Target of internal resources envisaged	Actual ascertain of Internal resources	
			Amount	Percentage
		(Rupees in crores)		
1974-79	2,54 34	50.87	31.74	12.48
1979-80	56.41	11.28	1.46	2.59
1980-81	65.06	13.21	1.48	2 24
1981-82	86.20	17.24	3.10	3.60

The decline in the mobilisation of internal resources was inspite of the fact that the Board resorted to tariff revisions once in May, 1978 and again in January, 1981 which were to generate an increase of approximately 13.8 and 11 per cent respectively in revenue from sale of energy.

(ii) The Resource Group of the Planning Commission worked out a commercial loss of Rs. 2,02.52 crores during 1980-85 without tariff revision as compared to estimated commercial loss of Rs. 40.88 crores in the previous plan period 1974-79. This loss included a commercial loss of Rs. 26.18 crores for 1980-81 against which actual commercial loss worked out to Rs. 31.21 crores inspite of enhancement of tariff by 11 per cent with effect from Ist January 1981. The table below

gives comparative position of these losses for the two years 1980-81 and 1981-82 :—

	As estimated by the Resource Group of the Planning Commission		Actuals	
	1980–81	1981–82	1980–81	1981–82
	(Rupees in crores)			
(a) Gross Revenue	84.16	99.57	93.33	1,19.12
(b) Revenue expenditure	62.90	79.25	79.10	1,13.14
(c) Gross Operating surplus	21.26	20.32	14.23	5.98
(d) Interest to institutional investors	13.28	14.94	13.68	16.80
(e) Depreciation	14.18	16.23	10.70	14.08
(f) Interest on State Govt. loans	19.98	22.96	21.06	23.61
(g) Total	47.44	54.13	45.44	54.49
(h) Commercial loss(g—c)	26.18	33.81	31.21	48.51

In their written reply, the Department/Board stated as under —

"(i) The internal resources of the Board have been raised as per the forecast made in the Budget Estimates. However, the Board could not achieve the target of 20% of the annual programme, as recommended by the Central Electricity Authority due to mainly high cost of the Thermal Generation, rise in wages/Establishment expenses etc

The position of the internal resources during the subsequent years is as under

Year	Actual capital outlay	Target of internal resources envisaged	Actuals
	(Rs. in crores)		
1982-83 (Revised)	114.50	3.00	3.57
1983-84	121.63	3.50	3.57
1984–85	98.82	4.00	2.37
1985–86	123.20	3.00	1.61

(ii) The position of the working results of the Board during the years 1982-83, 1983-84, 1984-85 & 1985-86 is as under :

	1982–83	1983–84	1984–85	1985–86
		(In crores of Rupees)		
(a) Gross Revenue	134.70	165.10	163.43	199.23
(b) Revenue Expdr.	122.43	134.54	153.04	180.40
(c) Gross operating surplus	12.27	30.56	10.39	18.83
(d) Interest to Institutional investors	24.65	23.49	31.42	36.81
(e) Depreciation	15.48	18.13	19.76	21.65
(f) Interest on State Govt. Loans	26.04	29.64	34.82	41.25
(g) Total (d+e+f)	66.17	71.26	86.00	99.71
(h) Commercial loss(g—c)	53.90	40.70	75.61	80.88

The Board is taking the following steps to improve the position and make the Board viable :—

(i) The Government has been approached to grant subsidy/reimburse the losses to the Board on account of Rural Electrification and low Agriculture tariff.

(ii) The tariff for general and industrial conections consumers has been revised by the Board w.e.f. 1-12-1987 due to which the Board will get additional revenue.

(iii) The Board is renovating the Thermal Power Project Faridabad & Panipat and as a result thereof there will be great improvement of generation side and the fuel consumption in shape of furnace oil will be on lower side. In this way on one side the generation will increase and on the other side the expenses on account of fuel will be on lower side.

(iv) The Board is reducing the unskilled staff in both the projects (Faridabad & Panipat) in phased manner by either diverting on general side or by way of retrenchment. In this way the establishment expenditure will be considerably reduced for generation of power in the projects."

In reply to supplementary questionnaire, the Department/Board stated as under :—

"(i) Following steps to make the Board viable have been implemented :—

(a) The conversion of state govt. loan of Rs. 390 crore into equity capital has been sanctioned. In addition, R.E. subsidy of Rs. 142.61 crore has also been sanctioned by the State government :—

For the year	Amount (Rs. in crores)	Accounted for in Board's accounts for the year
1983–84	19.97	1985–86
1984–85	32.51	1987–88
1985–86	30.13	
1988–89	30.00	1988–89
1989–90 Budgeted	33.00	(Actual 30.00 crore)
	142.61	

(b) As a result of increase in tariff w.e.f. 1-9-1985 in respect of bulk supply, street light, railway traction and demand charges of A.P. consumers and meter rent of all consumers and w.e.f. 1-12-87 in respect of all categories of consumers except domestic and agricultural and higher availability of power for sale, the revenue of the Board increased as under :—

Revenue from S.O.P.

(Rs. in crore)

	At 84-85 rates	Due to revision of tariff	Total	Percentage increase in revenue over previous year	Availability of power (In MU)	Percentage increase of power sold over previous year
1985–86	165.25	12.03	7.28		4256	
1986–87	182.45	21.21	203.66	15.70	4639	8.97
1987–88	204.22	*28.40	232.62	13.57	5157	11.16

*This includes tariff increase of all categories except DS & AP consumers w.e.f. 1-12-87.

(c) In order to cut down the cost of generation the work of renovation & modernisation in respect of Panipat Thermal Power Station and Faridabad Thermal Power Station is in progress. At Panipat Thermal Power Station out of 69 activities, 58 activities have been completed. Consequently, average P.L.F. which was 35.05% (Stage-I) upto 1984-85 has increased to 39.11% (Stage-I) in 1989-90.

In Thermal Power Station, Faridabad, out of 67 activities, 47 activities have been completed. The P.L.F. which was 27.93% in 1984-85 (3x60 MW) has increased to 45.71% in 1989-90. After completion of these activities, the generation on both the Power Stations has increased steadily over the years, as detailed below :—

	Gross energy generation during				
	1985–86	1986–87	1987–88	1988–89	1989–90
	(In MU)				
Faridabad (3x60 MW)	397	695	718	580**	708
Panipat (Stage-I)	750	561	569	636	754
Panipat (Stage-II)	—	190***	1002	1203	1093

**Less generation of 75.434 MU during 88-89 against deemed generation of 655 MU was due to closure of units on availability of cheaper power from other sources and decline in demand, and deemed generation is slightly less due to longer shut down of Unit-II for carrying out of R&M.

****Unit-III of Stage-II* was handed over to O&M in 7/86 & Unit-IV synchronised in 1/87.

(d) Skilled/unskilled staff reduced/transferred from thermal stations is as under :—

(i) Thermal power station, Faridabad	667
(ii) Thermal power station, Panipat	566
	1233

Besides, the following other steps have also been taken/are proposed to be taken :—

(a) Conversion of State government loan of Rs. 390 crore into equity capital out of total State government loan of Rs. 1041.73

crore as at the end of 3/88 would reduce the Board's interest liability on government loans and thereby reduce the commercial loss. A proposal to convert another Rs. 460 crore of State government loans into equity is under consideration.

(b) The tariff has been revised again w.e.f. 1-9-88. The benefit of the increased tariff will be available in subsequent years to reduce the commercial loss.

(c) Ban has been imposed on new recruitment to reduce the expenditure.

(d) Tata Research Institute has been commissioned to study the reasons for higher coal and oil consumption at Faridabad & Panipat Thermal Power Stations with a view to reducing cost on this account.

(e) A study has been commissioned on the prevalent billing procedure, inventory control, organisational structure, etc. so as to reduce expenditure in these areas.

These steps have made it possible to contain the commercial losses.

(ii) Against commercial loss of Rs. 202.52 crore during 1980-85 projected by Resource Group of the Planning Commission, commercial loss during the years 1980-81 to 1983-84 was normal & reasonable as compared to the projected loss by the Resource Group. The abnormal increase in commercial loss during 1984-85 is attributable to the following reasons :—

(a) The power availability from Hydro Generation during 1984-85 decreased by 314 MU and thermal generation increased by 228 MU over the previous year. The cost of overall generation/unit was, therefore, higher than the previous year.

(b) Due to availability of less power during 1984-85 as compared to the year 1983-84 less power was sold to the consumers. The revenue receipts therefore, did not show the required increase in the year 1984-85. The revenue receipts during 1984-85 were Rs. 163.43 crore against Rs. 165.10 crore during 1983-84.

(c) The expenditure on generation of power increased by about 18% and the establishment and O&M expenses by about 19% due to rise in price index. The total expenditure of the Board increased by Rs. 33.24 crore over the previous year and consequently the commercial loss also increased by almost the same amount.

(d) Power to the agricultural sector is being sold at a subsidised rate which is even less than the generation cost. Further, the share of power to agricultural sector as a percentage of total power

sold by the Board has been increasing resulting into increase in commercial loss as under :—

Year	Total power sold	Power sold to agricultural sector	Percentage of the power sold
		(In M.U.)	
1980-81	3390	972	28.67
1981-82	3867	1198	30.98
1982-83	3946	1350	34.21
1983-84	3954	1301	32.90
1984-85	3725	1375	36.91"

When it was pointed out to the Board that it had incurred losses to the tune of more than Rs. 520 crores by the end of last year which might have now further gone up, the departmental representative stated during the course of oral examination that there were basically three main elements which were responsible for the losses suffered by the Board, namely, (i) increase in cost of generation (ii) sale of power to agriculture sector at subsidized rate which had risen from 28.67 per cent of the power sold in 1980-81 to 55.90 per cent in 1989-90 and (iii) interest and depreciation. It was stated that the following steps had been implemented to make the Board viable—

(i) conversion of State Government loan of Rs. 390 crore into equity capital has been sanctioned;

(ii) Sanction of R.E. subsidy of Rs. 142.61 crore by the State Government;

(iii) increase in tariff w.e.f. 1-9-1985, 1-12-87 and again from 1-9-88. in respect of all categories of consumers except DS & AP consumers;

(iv) implementation of renovation and modernisation scheme in respect of Panipat Thermal Power Station and Faridabad Thermal Power Station to cut down the cost of generation; and

(v) reduction/transfer of skilled/unskilled staff from Thermal stations.

Besides, the following other steps had been taken/were proposed to be taken to contain commercial losses—

(a) proposal to convert another Rs. 460 crores of State Government loans into equity was under consideration;

(b) ban had been imposed on new recruitment to reduce the expenditure;

(c) Tata Research Institute had been commissioned to study the reasons for higher coal and oil consumption at Faridabad and Panipat Thermal Power Stations with a view to reducing cost on that account; and

(d) A study had been conducted on the prevalent billing procedure, inventory control, organisational structure, etc. to reduce expenditure in these areas.

When enquired by the Committee, it was stated by the departmental representative that the Tata Research Institute was commissioned in January, 1990, and was to submit its report within 3 months but so far it had not done any substantial work and they would be pursued to complete the job expeditiously.

The Committee note with concern that the Board has been incurring heavy losses since its inception. The Committee, therefore, feel that the things will go out of control of the Board unless stringent measures are adopted to remedy the financial crisis faced by the Board.

The Committee, therefore, recommend that—

(i) operational efficiency be increased and steps taken to reduce the operational losses to the minimum possible extent;

(ii) a Committee, including senior representatives of the Government, be constituted to make job analysis i.e. proper assessment of the work load in the Board and the number of posts required in different cadres, particularly, the supervisory cadre, so that it is ensured that the number of posts and the work load in the Board is in accordance with the norms fixed by the Government for its office; and

(iii) utmost economy be effected in expenditure on the use of telephones, vehicles and airconditioners etc.

The economy exercised as a result of the above measures might help in restoring the financial health of the Board and reduce losses being suffered by it.

The Committee further recommend that the matter with the Tata Research Institute be pursued vigorously and the action taken in the light of their report be intimated to the Committee.

6.7.02. *(iii) & (iv)—Inventory holdings and amount recoverable*

7. Apart from the inadequate generation of funds from internal resources, and time-lag in mobilisation of funds from external resources, the following factors have also effected the Board's financial position : (A) Maximum and minimum limits for various items of stock not having been fixed, the book balance of inventories, which at the close of 1974-75

stood at Rs. 21,29.66 lakhs, rose to Rs. 29,15.85 lakhs at the end of the Fifth Five Year Plan. By the end of 1981-82 it had registered a steep rise to Rs. 68,75.10 lakhs.

The inventories at the end of March, 1982 included .

(a) Stores valued Rs. 49.58 lakhs purchased for the 2x60 MW Thermal Plants at Faridabad, which were commissioned during 1974-75 and 1975-76, respectively still lying (December, 1982) unused.

(b) Iron, copper, aluminium and lead scrap of the value of Rs. 51.59 lakhs as assessed by the Board (age-wise break up not available).

(c) Obsolete and unserviceable materials valued Rs. 54.97 lakhs (age-wise break up not available).

(d) Stores valued Rs. 89.00 lakhs were lying un-used for three to ten years as on 31st March, 1981. Similar data at the close of March, 1982 is not available.

(e) Tower materials valuing Rs. 37.23 lakhs procured for transmission and distribution works lying unsued (December, 1981) in five sub-stores (out of 21 sub-stores) from one to three years.

(f) Switch board and panel (value : Rs. 1.74 lakhs) received in May, 1979 in Central Store Ballabgarh, but not used on works because of non-rectification of defects of the trolley (cost of trolley being only Rs. 2,000) for whose operation the panel was procured.

(g) Sundry debtors for sale of energy and amounts recoverable from other State Electricity Boards, etc., had been increasing as may be seen from the following details :—

Year	Sale of energy	Sundry debtors for energy at the end of the year (Rupees in lakhs)	Percentage of sundry debtors to sales	Amount recoverable from other State Elecy. Boards etc.
1978-79 (at the end of the Fifth Plan)	64,37.15	4,43.80	6.89	46,79.25
1979-80	67,04.45	5,41.76	8.68	57,79.05
1980-81	85,06.71	9,54.51	11.22	72,37.12
1981-82	1,09,41.17	12,11.74	11.08	87,43.84

The sundry debtors at the close of 1981-82 included Rs. 9,30.52 lakhs outstanding against defaulting consumers. These included debts aggregating Rs. 94.99 lakhs outstanding for a period of more than three years. An amount of Rs. 1,41.00 lakhs was due from 213 debtors whose cases were pending in courts/arbitration as on 31st March, 1981. Similar figures as on 31st March, 1982 have not been compiled.

The Board decided (January 1982) to write off surcharge outstanding beyond six months and directed that the consumers accounts be scrutinised. Neither action in this regard has yet (January 1983) been taken nor the extent of surcharge becoming non-recoverable on this account assessed.

In their written reply, the Department/Board stated as under :—

"*MM Organisation :*

Out of total inventory of Rs. 6875.10 lacs as on 31-3-82, inventory worth Rs. 3006.56 lacs relates to MM Organisation. It is always our endeavour to keep the stores to the bare minimum level. As a result of efforts made in this direction, the inventory has been brought down to Rs. 1645.95 lacs as on 31-3-85. This includes value of various spares and specific material to be allotted/issued by C.E./P&C on receipt of pending matching material. The value of such material is to the extent of Rs. 300 lacs. Thus the balance inventory of Rs. 1345.95 lacs is not on higher side. Needless to mention here that HSEB being public utility organisation engaged in maintaining large network of transmission/distribution system, sufficient material has to be kept for on going project works, maintenance works and urgent works caused due to breakdown of supply. The minimum and maximum levels of stock items have been fixed in February, 1985.

In the amount of Rs. 54.97 lacs, on account of scrap of iron, copper, aluminium, lead and unserviceable and obsolete items, an amount of Rs. 51.59 lacs is inculded on account of cost of scrap of various kinds. All items of unserviceable/obsolete/scrap of copper, iron, lead and aluminium have been disposed off through auction held on 5-8-81, 8-11-82 at Delhi, on 9-7-81 and 10-2-82 at Dhulkote on 19-8-81, at Panipat/Karnal and through NITS No. 50,60,65 & 102. The amount realised through auction/NITS by disposing off these items works out to Rs. 56.08 lacs.

The defective trolley has since been replaced by the firm and the same has been issued to S.D.O., Const. Sub-division, Bhiwani on 6-10-81.

Project works (Thermals and Hydel)

Sufficient material has to be kept for on-going project works i.e. Thermal Project at Panipat, Hydel Project at Yamuna

Nagar while the third unit of Panipat Thermal Plant commissioned during 1985 and fourth unit commissioned on 11-1-87.

For the running and maintenance of thermal power houses sufficient quantity of material as well as spare parts was necessary to be kept for them.

Workshop Organisation

As the workshop meant for manufacturing new transformers and repairing of damaged transformers are also running in the Board, sufficient quantity of material/spare parts and transformers oil etc. was required to be kept.

Due to price escalation (increase in price index) which is a world wide phenomenon, the real value of the inventory in the succeeding years is on the higher side and reflects to have registered a steep rise

The defaulting amount at the end of 4/85 is Rs. 25.50 crores out of which Rs. 16.37 crores relates to Govt./Semi Govt. agencies. The increase in defaulting amount is primarily due to non-payment of dues by Govt./Semi Govt. agencies and levy of surcharge on the payment due. Also in many cases the consumers have disputed the charges and the cases are pending in the courts/Arbitration. The year wise position of defaulting amount is as under —

Year	Defaulting amount (Rs. in crores)
1975-76	2.30
1976-77	2.31
1977-78	2.54
1978-79	3.75
1979-80	5.34
1980-81	6.36
1981-82	9.55
1982-83	12.13
1983-84	25.57
1984-85	24.45 (Ending 3/85)

As per latest data available there are about 900 cases pending in the court involving an amount of about Rs. 6.00 crores.

The Board has not declared any debt as doubtful and every efforts are being made to realise all debts."

In reply to supplementary questions, the Department/Board stated as under :—

"The position of inventory as on 31-3-88 & 31-3-89 is as under :—

Particulars	As on 31-3-88	As on 31-3-89
	(Rs. in crore)	
(a) Fuel stock	13.23	13.91
(b) Stock for O&M	42.20	49.15
(c) Capital stores	39.26	46.36
Total :	94.69	109.42

The increase in the capital stores is on account of material/equipment received for on going projects. The increase in fuel stock and O&M stores is on account of commissioning of IVth Unit on 11-1-87 and Vth Unit on 28-3-89 at Panipat Thermal Power Station and increase in prices.

Out of amount of Rs. 8743.84 lacs shown as recoverable from other State Elecy. Boards at the end of the year 1981-82 a sum of Rs. 8267.14 lacs has already been recovered/adjusted by the end of 31-3-90. The latest figures of the amount recoverable from other States upto 31-3-90 out of the above amount is Rs. 476.70 lacs.

It may thus be seen that huge amount has already been cleared due to our strenuous efforts and follow up action. Efforts are also being made to recover/settle the balance amount of Rs. 476.70 lacs."

It was stated by the departmental representative that the position of inventory as on 3/89 and 8/90 was as under :—

	Period ending	Value of inventory
		(Rs. in crores)
(a) Projects	3/89	109.42
(b) Distribution & Transmission stores	3/89	27.34
Total		137.16
(a) Projects	8/90	47.07
(b) Distribution & Transmission stores	8/90	25.70
Total		72.77

This showed that the inventory had been reduced during the said period to the extent of Rs. 64.39 crores.

With regard to fixation of reserve stock limit, it was stated that minimum and maximum imit for important and costly items being used in the distribution system fixed by the Board were as under :

Total proposed minimum level : Rs. 9.7 crore.

Total proposed maximum/procurement level : 36.0 crore.

As regards Transmission Works, store items were being purchased for specific works only as provided in the construction programme. In regard to Thermal Power Projects there were no norms for coal and fuel oil stock but these were generally recommended to be kept for a period of one month so as to cover unforeseen circumstances. As regards spares for power projects, BHEL had recommended that these should be kept to cover the requirement for a period of atleast three years.

In regard to the steps taken to reduce the inventory, it was stated that all items available in Divnl. and Central Stores in respect of Transmission/Distribution system, had been computerised. ABC analysis of the inventory had been made and steps were being taken to reduce the levels of inventory in respect of major items which constituted maximum values of the inventory.

Identification of surplus, obsolete and slow moving items had also been carried out in respect of Projects as well as Transmission and Distribution Stores. The total value of surplus, obsolete and slow moving items lying in stores and the projects was Rs. 1,09.36 lacs out of the total inventory of Rs. 72.77 crores. The lists of such items had been circulated to various agencies in the Board as well as to outside agencies to find out if the same could be utilised and action was being taken for disposal of these items.

During the period 4/90 to 11/90, material amounting to Rs. 177 lacs had been disposed off while material worth Rs. 25 lacs had been put to use.

Besides, while effecting purchases the indent received from the field offices were being thoroughly scrutinised so that the material was not purchased in excess of actual requirements.

It was also stated during oral examination that out of Rs. 8743.84 lacs shown as recoverable from other State Electricity Boards at the end of the year 1981-82 a sum of Rs. 8267.14 lacs had already been recovered/adjusted by the end of 31-3-1990, leaving a balance of Rs. 476.70 lacs. A detailed break up of the amount outstanding, reasons thereof and efforts made by the Board for recovering the same were given as under :—

"1. (i) Pensionary liability of composite P.S.E.B.—Rs. 49,86,545.

(ii) Pensionary charges recoverable from State Govt.—Rs. 46,79,104.

These pensionary charges relate to the pension paid to the employees retired in H.S.E.B. and a proportion of the amount so paid is recoverable from the Composite P.S.E.B./State Government. Such like claims have also been raised on H.S.E.B. by the P.S.E.B. ranging within the claims of the H.S.E.B. But these claims have not been admitted by the H.S.E.B. as the similar amount is also recoverable from the P.S.E.B. The decision is still to be arrived at to finalise the claims and counter-claims by holding bi-lateral meetings. Efforts will be made to settle these claims at the earliest possible opportunity for finalising such claims.

2. Expenditure on Half a Million Job Scheme recoverable from the State Govt.—Rs. 51,026.

The above charges relate to the amount paid to the employees appointed under Half a Million Job Programme Scheme against which the amount so paid was to be reimbursed by the State Govt. This Scheme was operative during 1973-74 and 1974-75. The amount paid during this period i.e. Rs. 1.31 lacs was got re-imbursed from the State Govt., but the amount of Rs. 51,026 has been shown as booked in the account during the subsequent years which appears to be due to misclassification. Efforts are being made to lay hands on the old record during which the amount was booked and misclassified and rectification of the misclassification-wise carried out after due verification.

3. Amount recoverable from the Central Govt. on account of Apprentice Account—Rs. 2,45,777.

These charges are shown as recoverable from the Central Govt. which relate to the amount paid for the training of Graduates and Technicians under the Apprentice Act 1973. The amount booked under this head relates to the period from 1976-77. As per Scheme, the claims were to be raised on the Central Govt. by the Circle Offices. Since the amount booked under the Scheme relates to a very old period, efforts are being made to get the facts of the claims from field offices for early settlement.

4. Excise Duty recoverable from the Excise Deptt.—Rs. 2,54,76,011.

As verified from the record, this amount relates to the period from 1978-79 onwards, out of which, a sum of Rs. 2,52,81,035 has already been recovered/adjusted from the amount payable to the Excise Deptt. on account of Excise Duty payable on generation and on the manufacture of Transformers in the Dhulkote Workshop and adjustment in this regard in the accounts are being made separately. The only claim for 11/80 amounting to Rs. 2,94,976 is pending before the Collection (Appeals) Excise Deptt., Delhi and his award is awaited.

5. The amount recoverable from the Beas Construction Board—Rs. 5,61,391.

The amount recoverable from the B.C.B. pertains to the period prior to 1980 and it has not been possible to dig out the record of the above period to know the exact nature of recoverable amount from the

B.C.B. The record is, however, being sorted out and some time will require to locate the same

6. Amount of interest on M.T. loan—Rs. 7,117

The facts of the claims are being ascertained separately

7. Amount recoverable from R.S.E.B. on account of share in Capital/ Revenue Expenditure—Rs. 1,16,62,670

The details of the Revenue/Capital Expenditure booked by the Accounting Units during the year 1976-77 onward for the maintenance of lines etc. on Common Pool Works are being sorted out and will be cleared on availability of the complete details either by lodging claim with the R.S E B. or adjustment as the case may be."

The Committee recommend that the maximum and minimum limits in all areas of stock holding should be fixed and within a specified time the stocks should be brought down to the level of reserve stock limits so fixed. Wherever the stock limits are not likely to be fixed immediately, the norms should be adopted on an adhoc basis on the pattern prevalent in the Punjab State Electricity Board.

The Committee further recommend that the surplus/obsolete material lying with the Board be disposed off at the earliest so that the money does not remain blocked unnecessarily.

The Committee would also like to know the latest position of the inventory and the action taken about the disposal of surplus/obsolete material lying with the Board.

The Committee observe with concern that even till now the Board has not been able to sort out the record in certain cases to establish its claim for recovery, which should be done without any further loss of time.

The Committee recommend that vigorous efforts to recover the outstanding dues be made and the recovery effected expeditiously and, in case required, the matter be taken up at higher levels to avoid further delay and the Committee be kept informed about the progress made in the recovery of the oustanding amounts.

6.7.06. Generation of Power

8. (i) The Seventh Annual Electric Power Survey (1972) had laid down standard generation per K.W. of installed capacity at 5500 Kwh for new and efficient thermal generating sets, and 3080 Kwh for more than 10 years old uneconomic generating units, against which the Board expected a generation of 2500 Kwh per K.W. of installed capacity of thermal generating sets during the first year of operation, 4000 Kwh during second year, 5000 Kwh during third year and 5500 Kwh during subsequent years of operation Even these could not be achieved (except

in the first year in first and second units of Faridabad Thermal Station and of Panipat Thermal Station) as seen from the table given below :—

Year of operation	Assumed generation per KW of installed capacity	Actual generation per KW of installed capacity			
		Faridabad Thermal Station		Panipat Thermal Station	
		First Unit (April, 1975)	Second Unit (May, 1976)	First Unit (November, 1979)	Second Unit (March, 1980)
		(Figures in Kwh)			
First	2500	4491	4746	2655	3235
Second	4000	3198	3861	3477	3340
Third	5000	4791	1794		
Fourth	5500	2948	4074		
Fifth	5500	2009	2845		
Sixth	5500	2335	4355		
Seventh	5500	2633			

(ii) The table below indicates the details of forecasts of power generation for the Fifth Five Year Plan (1974-79) and annual plans for 1979-80 to 1981-82 and the achievements there-against.

	Fifth Five Year Plan		Annual Plans					
			1979-80		1980-81		1981-82	
	Projection	Actuals	Projection	Actuals	Projection	Actuals	Projection	Actuals
	1	2	3	4	5	6	7	8
1. Installed Capacity—								
(i) Hydro MW	2285	..	654	..	654	..	696	..
MKWH	20017	..	5729	..	5729	..	6097	..
(ii) Thermal MW	941	..	417	..	417	..	477	..
MKWH	8243	..	3653	..	3653	..	4179	..

	1	2	3	4	5	6	7	8
2. Gross Generation—								
(i) Hydro*	6635	7400	2580	3075	2720	2967	3020	3198
(ii) Thermal	4847	3844	1477	898	1675	1303	2065	1570
3. Auxiliary consumption Thermal	383	372	118	119	132	205	216	240
4. Net generation	11099	10872	3039	3854	4263	4065	4869	4528
5. Purchase of Power	2440	1030	120	147	190	120	250	147
6. Transmission and distribution losses	2983	2569	832	731	891	794	998	808
7. Net power sold	10556	9333	3227	3270	3562	3391	4121	3867

*Excluding direct sale of common pool consumers.

While the hydel power is obtained from Bhakra Beas Management Board, the thermal power which is generated by the Board had been short of the plan projections through out. The percentage of thermal power generated to installed capacity varied from 29.5 percent to 50.1 percent during the Fifth Five Year Plan. In the subsequent Annual Plans, it slumpted to 33.2 percent in 1979-80, 32.2 percent in 1980-81 and 39.00 percent in 1981-82. It is also evident from above that whereas the installed capacity of the Board's own generatng units at the close of 31st March, 1981 compared to that on 31st March, 1974 had increased by 382.7 percent the corresponding growth in actual generation was only 189.5 percent.

(iii) Apart from the slippages in commssioning of various units as per scheduled progrmame, the following factors contributed to low generation and power availability :—

(a) The first and second units (110 MW each) at Panipat had to be operated at half of their capacity for 5208 hours during November, 1997 to April, 1980 because hydrogen could not be charged and the units had to be run on air cooling. Both the Units were, derated by 15 MW each since the date of commissioning as the H.P. heaters could not be charged (June, 1982).

(b) The actual plant availability* from 48.0 to 67.8% during the Fifth Five Year Plan and from 44.8 to 58.1 percent (Farida bad Power Station) and 56.9 to 63.0 percent (Panipat Power

*Plant availability means the percentage of actual running hours to total hours in a year.

Station) during 1979-80 to 1981-82 compared to 88 percent of available hours in a year prescribed by the Power Economy Committee of the Govt. of India (1971). A unit wise analysis disclosed that the availability factor was as low as 44.1, 38.5 and 46.0 percent in the case of Unit-I at Faridabad during 1979-80, 1980-81 and 1981-82 respectively and 42.9 per cent in Unit-II during 1980-81.

(c) The projections for generation were worked out on the assumption that the plants would not be available for operation to the extent of 10 percent on account of forced outages. The actual forced outages, in fact, were abnormally high as shown in the table below :—

Year	FARIDABAD			PANIPAT	
	Unit-I (60 MW each)	Unit-II	15 MW Unit	Unit-I (110 MW each)	Unit-II
	(Percentage of forced outages to available hours)				
1978-79	29 2	70 0	11.1	..	..
1979-80	25.8	35.4	19.4	32.1	86.7
1980-81	46.0	39.1	35.0	40.5	41.2
1981-82	30.7	30.3	36.4	22.0	29.8

The heavy incidence of outages was attributed by project authorities from time to time to mechanical and electrical troubles and faults in instrumentation and control cables and other operational troubles

(d) Against the auxiliary consumption of 8 percent assumed in the Plan Projections during 1974-75 to 1980-81 and 10.5 percent during 1981-82, the actual consumption in the system auxiliaries varied from 8.4 to 10.9 percent during the Fifth Five Year Plan and further increased to 13.3, 15.7 and 15.3 percent during 1979-80, 1980-81 and 1981-82 respectively.

The Committee on Public Undertakings in its Fifth Report presented to the House on 30th March, 1982 observed that there was scope for reducing the percentage of auxiliary consumption and recommended that suitable steps be taken to bring the percentage to a figure close to normal consumption. The consumption continued to be on the high side and the specific action taken to reduce the consumption and the results thereof are awaited.

(e) The Central Water and Power Commission (CWPC) recommended (April, 1967) for acceptance and adoption of 4 percent for extra high tension (220, 132 and 66 KV) transmission

losses and 11 percent for sub-transmission below 66 KV and distribution lines, i.e., 15 per cent in all. The Board, however, planned that during the course of Fifth Five Year Plan, the system losses be reduced from 24.2 per cent in 1974-75 to 21 percent at the end of the Fifth Plan, i.e. 1978-79. A further reduction of half percent per year was envisaged in the subsequent Annual Plans. Although the system losses at the end of 1978-79 came down to 19.9 percent there had been spurt in the system losses during 1979-80, 1980-81 and 1981-82 when the percentage of loss increased to 21.0, 23.7 and 21.3 respectively.

(iv) The extent of system losses in financial terms at average selling rate was of the order of Rs. 1,03,03 crores during 1974-75 to 1981-82 of which loss to the tune of Rs. 31.99 crores was in respect of line losses in excess of the norm of 15 percent laid down by CWPC.

As the heavy losses in distribution system were found to be mainly on account of tempering, stopping and poor maintenance of meters, poor power factor, low load factor, low demand factor, unplanned extension to 11 KV and below distribution net work and poor workmanship, the Board approached the Rural Electrification Corporation (REC) for financial assistance for system improvement schemes. During 1977-78 and 1978-79, 10 such schemes with financial assistance of Rs. 6,94.97 lakhs were sanctioned by the REC. The schemes were to be implemented within a period of two years. Against Rs. 6,94.97 lakhs sanctioned under these schemes, assistance to the extent of Rs. 4,21.67 lakhs could have been drawn to the end of 1978-79. Even at the end of March, 1982, assistance to the extent of Rs. 38.09 lakhs was not drawn as the progress under the schemes was not adequate as would be seen from the table below :—

	Targets	Achievements	Shortfall
(1) Augmentation of 33 KV Sub-Stations (Number)	13	10	3
(2) Construction of new 33 KV Sub-stations (Number)	21	16	5
(3) 33 KV lines (kms)	292.500	190.575	101.925
(4) 11 KV lines (Kms)	732.870	686.910	45.960
(5) Augmentation of 11 KV lines (Kms)	586.230	511.235	74.995
(6) Distribution transformers (Number)	1542	1028	514

The Committee appointed in July, 1973 at the Fourth Conference on "Standardisation of specifications and construction practices on Rural

Electrification" recommended large scale application of LT capacitors as one of the most economical methods of reduction of losses in the rural electrification system. Two schemes for the purchase and installation of 38,415 LT capacitors in Five Divisions were sanctioned by the REC in December, 1977 with a loan assistance of Rs. 99.19 lakhs. The schemes were to be implemented within a period of two years. Against the total loan of Rs. 99.19 lakhs sanctioned Rs. 46.90 lakhs only were drawn during 1977-78 and 1978-79, i.e., after a delay of one year and the balance amount of Rs. 10.76 lakhs could not be drawn at all because of non-achievement of targets of installations as envisaged in the scheme.

Orders for the purchase of 22,200 LT capacitors against these schemes were placed during March, 1977 to October, 1978; the capacitors were received during December, 1977 to May, 1980. The balance quantity (16,215) was ordered in February, 1980 and received by November, 1981. Upto the end of the prescribed period of two years, i.e., 1979-80 only 5,405 capacitors were installed. Further, 21,243 capacitors were installed during the year 1980-81 and 1981-82 leaving a balance of 11,767 LT capacitors (shortfall being 30.63 percent) yet to be installed.

In their written reply, the Department /Board stated as under :—

"(i) Station wise position of generation/Kwh during subsequent years is given as below :—

(i) Faridabad Thermal Power Station

Year of operation	Assmed generation per KW of installed capacity	15MW plant	1st unit	2nd unit	3rd unit	Stn.
82—83(Eighth)	5500	3167	3210	2652	1603	2540
83—84 (Ninth)	5500	4165	1723	2612	3031	2587
84—85 (Tenth)	5500	3730	1290	3320	3730	2554

Reasons for not achieving the Generation target during the various years are given as under :—

(a) Design deficiences in some of the main equipment i.e.

(i) Coal mills

(ii) Instrumentation system

(iii) Valves for feed control attemperation system.

(iv) Increase in curtis wheel pressure & high axial shift

(v) In-effective electro precipitator

(iv) Defective bunkers of Unit-III

(b) Poor quality of coal

(c) Bad quality of raw water

(d) Non-supply of spares by BHEL being out dated plant

(e) Inexperienced staff

Panipat Thermal Power Station

Year of operation		Assumed generation per KW of installed capacity	1st Unit 11/1979 Generation Unit-I	2nd Unit March, 8? Stn. Generat-ion. (Unit-II)
1979—80	First	2500	960	2.0
1980—81	Second	4000	2654.4	3235.0
1981—82	Third	5000	3476.6	3340.6
1982—83	Fourth	5500	2668.0	3621.2
1983—84	Fifth	5500	4007.6	1730.0
1984—85	Sixth	5500	2352.2	4607.6

Reasons for not achieving the generation target during the various years are as below —

Year 1979-80

(i) The unit was run on 50% load due to non charging of Hydrogen gas as the air leakage was observed during running of the plant. Shut down on the unit was not allowed to M/s. BHEL for attending the problem due to power shortage and the unit had to be run on 50 M.W. load during the year 1979-80.

(ii) Unit-II has just been commissioned on 27-3-80. Thus the generation during the year 1979-80 was low resulting in very high auxiliary consumption of the order of 27.5%.

(iii) The tripping on Unit-I has been excessive due to upper/lower crash limit of drum level, low vacuum high L.P. and M. P. expansions.

Year 1980-81

Unit-I

The availability of the units was low as the Units had been under shut down due to the following reasons —

(i) For charging of Hydrogen from 1-5-80 to 18-5-80.

(ii) Choking of Ash Handling plant for 5 days during 5/80.

(iii) Failure of both the BFPS from 18-9-80 to 21-10-80.

(iv) Leakage of Hydrogen from the generator from 9-12-80 to 15-12-80.

(v) Shortage of coal during January, 1981.

(vi) Frequent Trippings on the Units.

Unit-II

(i) Barring gear damaged from 16-5-80 to 28-5-80.

(ii) Frequent choking of coal due to wet Coal.

(iii) The fire on the boiler front caused damage to boiler furnace insulation from 8-9-80 to 17-9-80.

(iv) Repair of Economiser supports from 18-12-80 to 22-12-80.

Year 1981-82

Unit-I

(i) Hydrogen gas leakage, repair of Economiser tube pent house leakage and boiler inspection from 27-11-81 to 8-12-81.

(ii) Condenser tube leakage from 5-2-82 to 15-2-82.

(iii) Water wall tube leakage (Twice)

(iv) Excessive trippings.

Unit-II

(i) Condenser tube leakages (Twice) from 29-6-81 to 6-7-81.

(ii) Leakage of Seal oil from the generator.

(iii) Leakage in economiser tubes and the turbine bearings from 12-10-81 to 31-10-81.

(iv) Leakage in water wall tubes of furnace from 7-2-82 to 12-2-82.

(v) Leakage in Cold reheat line from 2-3-82 to 4-3-82.

Year 1982-83

Unit-I

(i) Water wall tube leakage from 1-4-82 to 4-4-82.

(ii) Leakage in valve S-26 and EBD valve jammed from 21-6-82 to 23-6-82.

(iii) Unit was under capital mtc. from 25-7-82 to 10-11-82.

(iv) High viberations on turbine bearings of Unit-1.

(v) Water wall tube leakage from 19-3-83 to 23-3-83.

(vi) Super heater steam leakage from 12-2-83 to 16-2-83.

Unit-II

(i) Inspection of boiler furnace from 1-4-82 to 18-4-82.

(ii) Puncturing of Superheater tubes from 21-5-82 to 28-5-82.

(iii) To attend M.D. bottom flange and governing system from 18-6-82 to 30-6-82.

(iv) H2 leakage from 24-8-82 to 27-8-82.

(v) Unit remained under shut down, from 4-11-82 to 31-12-82 to repair the damaged wind box.

Year 1983-84

Unit-I

(i) Unit remained under planned shut down from 15-4-83 to 28-4-83 for testing and commissioning of split Coal nozzles system by BHEL engineers.

(ii) Platen superheater tube leakage at 37mts. level from 3-5-83 to 8-5-83.

(iii) Water wall tube leakage from 25-5-83 to 27-5-83.

(iv) Screen tube leakage in the horizontal path of the furnace from 13-6-83 to 15-6-83.

(v) Outage of Unit-I due to water wall tube leakage 1-8-83 to 3-8-83,

(vi) Super heater tube leakage at 36mts. level 13-8-83 to 16-8-83 and 28-8-83 to 31-8-83.

(vii) Leakage from the flange under intercepter valve (left) on M.P. stage of the turbine from 5-10-83 to 9-10-83.

(viii) Flue gas ducts repaired, sucking of air inside the furnace and damaged refractory at the roof of the pent house.

(ix) Governor system hunting was attended from 19-2-84 to 23-2-84.

Unit-II

(i) Water wall tube leakage from 15-4-83 to 18-4-83.

(ii) Lack of demand from 19-4-83 to 24-4-83.

(iii) Shut-down of unit from 28-5-83 to 31-5-83 at the boiler front due to fire.

(iv) H2 seal oil system failed from 15-6-83 to 21-6-83.

(v) Unit was under shut down from 2-7-83 to 17-7-83 due to non-availability of impellers of ID Fans for the replacement.

(vi) Unit remained under capital Mtc. from 23-7-83 to 31-1-84. The Stator coils had damaged.

Year 1984-85

Unit-I

(i) Unit remained under shut down from 1-4-84 to 10-10-84 due to damage to the stator.

(ii) Water wall tube leakage from 20-11-84 to 23-11-84 and from 13-12-84 to 16-12-84.

(iii) Steam leakage from cross-over transfer pipes from 8-1-85 to 13-1-85.

(iv) LTSB tube leakage from 14-1-85 to 17-1-85 and from 17-1-85 to 19-1-85.

(v) Water wall tube leakage from 30-1-85 to 31-1-85.

(vi) Puncturing of 6 No. L.T. superheater from 1-3-85 to 3-3-85.

Unit-II

(i) Superheater tube leakages (twice)

(ii) Water wall tube leakage at 32 Mts. level.

(iii) Impeller of ID Fan 2B was replaced.

(iv) Water wall tube leakage from 13-9-84 to 15-9-84, 27-9-84 to 29-9-84 and 10-11-84 to 13-11-84 and from 8-1-85 to 10-1-85.

(ii) (a) Reasons for shortfall in the generation of thermal power have already been listed under Para 6.7.06 (i) above.

(b) Following steps have been taken to increase the generation level.

(1) Faridabad Thermal Power Station

All the problems like coal mill, defective bunkers of Unit-III poor quality of coal, bad quality of raw water, non supply of spares by BHEL, ineffective electro static precipitator, inexperienced staff etc. etc. attributed to low generation have been identified and renovation programme for some of the major equipment costing about Rs. 38 crores has been finalised after discussion with C.E.A., BHEL, I.L.K. This programme of renovation work will be implemented in the first three years during 7th plan period. In the beginning almost whole of the staff has been inexperienced. The staff and officers are now being trained by sending them to different training institutions viz. Nagpur, Badarpur etc. A training section in our own power house at Faridabad has also been set up for this purpose. The matter regarding replacement of existing hammer mills with drum mills has been discussed at higher level i.e. C.E.A., BHEL, Planning Commission and approval for their replacement has been accorded. At the time of designing of these new mills BHEL will also take care of the quality of coal available i.e. grade C.D.E.

(2) Panipat Thermal Power Station

(i) The coal pipes in between the coal bunkers and the R.C. feeders have been modified to arrest the eriatic coal flow problems.

(ii) The over all availability of the station was increased from 50.3% to 58.3% during the year 1984-85.

(iii) The number of outage of both the units have been reduced from 442 during 1980-81 to 215 during the year 1984-85.

(iv) The entry of foreign material alongwith coal was removed by taking effective steps in coal handling plant i.e. like better performance of crushers and better working of magnets for detecting the foreign material.

(v) The working of H.P. heaters of both the units was improved. The H.P. heaters were kept in service during the year 1984-85 thereby increasing the generation.

(vi) The average heat rate/Kwh during the year 1979-80 was 4775 whereas the same has been reduced to 3506 Kcals/kwh during the year 1984-85.

(vii) The working personnel has gone better trained with the operation and maintenance of the equipment which has also resulted into better performance of the units during the subsequent years.

Thermal Power Generation percentage during the years 1982-83 to 1984-85 had been 35.8, 33.0 and 38.34 respectively. The installed capacity of the Board's own generating units remained 477.5 MW during the corresponding period.

(iii) (a) & (b)

Factors contributing for low generation etc. and steps taken to remove these factors to increase power generation have already been listed above.

(c) Following table will indicate the position as asked for :

Year	Faridabad				Panipat	
	Unit-I	Unit-II	Unit-III	15 MW	Unit-I	Unit-II
1982—83	31.40	31.50	41.91	10.43	61.85	40.81
1983—84	37.71	23.09	38.12	23.10	31.02	51.37
1984—85	25.48	29.15	36.74	23.96	61.80	26.8

(d) In the revised Budget Estimates for the year 1982-83, auxiliary consumption at the over all rate of 13% was made. A provision of 12.5% on the recommendation of working group of planning commission for the generation was made for the year 1983-84. However, taking into account of higher auxiliary consumption it has been raised to 14% in the revised estimate of year 1983-84 and budget estimate for the year 1984-85. The auxiliary consumption during the years 1982-83 to 1984-85 had been 15.35%, 15.98% and 13.65 % respectively.

The reasons for higher consumption of power in Auxs. has been investigated. It is pointed out that Auxs. consumption is directly related to the generation of power. In case the generation is low the Aux. consumption in percentage would be higher. Most of time the units are operated on partial load due to the poor quality of coal etc. All the Auxs. are required to run even when the unit is on partial load. However, the Aux. consumption at this power station is comparable with Aux. consumption at other power stations of similar capacity. The steps have been taken to analyse the higher Auxs. consumption by monitoring consumption by individual Auxs. and shutting down the unwanted Auxs. when the unit is out. The Aux. consumption is expected to come down with the increase in generation in the coming years.

Efforts are, however, afoot to reduce the auxiliary losses during the coming years.

(e) The following efforts have been made to reduce the line losses :—

(i) Feeder wise ledgers have been opened in order to audit the units received and units billed against each feeder for assessing the losses and taking suitable measures to control the same.

(ii) 11 KV capacitor banks have been provided at most of the grid sub-stations in the State. This will result into appreciable improvement in the system voltage and power factor and subsequent reduction of losses.

(iii) The Board has made it obligatory on the part of industrial, agricultural consumers both prospective and existing to provide L.T. capacitors of requisite size at the motor terminals.

(iv) In order to control large fluctuations in system voltage due to variation in load, the Board has procured power transformers with OLTC gear which ultimately will ensure better voltage at the consumer's premises and will also reduce the line losses.

(v) Realignment of transmission lines and augmentation of distribution system and transformer in order to curtail the line losses for various areas has been undertaken systematically.

(vi) A special drive was launched by the Board to detect unauthorised connection, extension of load, dead stop/faulty meters and theft of energy. As a result thereof proper accounting a result of the energy supplied and realisation of the charges has improved.

The percentage of system losses in subsequent years was as under :—

1982-83	19.8%
1983-84	19.56%
1984-85	21.81%

(a) Haryana is pre-dominantly an agricultural State although industrial activity has picked up sharply in the recent past. The agricultural consumption accounts for 40% of the total power consumption in the State with the peak demand during season going upto 60% at times. This situation reflects in high system losses because sub-transmission lines and distribution lines are far spread and also low load factor of the system especially in Southern areas where single cropping pattern is practised and power requirement is only for half the year only. The other major factors contributing towards high losses are listed as under :—

(i) Lengthy transmission lines catering to their low density in rural areas.

(ii) Supply to tubewell connections.

(iii) Loss of diversity during power shortage days and overloading of the system

The line losses during 1982-83 to 1984-85 were 19.8%, 19.56% and 21.81% respectively.

(b) Extensive checking of energy meters installed at consumer's premises is being carried out at all levels. The officials/officers are required to carry out checks as per norms and take immediate remedial measures where necessary. In suspected theft cases, vigorous checking is resorted to and in some cases even weekly readings at odd intervals are being recorded to ensure that the meters are not tampered with by un-scrupulous consumers in connivance with certain employees.

However, it has been observed that the quality of meters is not satisfactory. Good quality meters are required to be made available in sufficient quantity in the field so that defective/dead stop/sticky meters are replaced immediately. Further the meters are required to be recalibrated after certain intervals so as to ensure proper recording of energy for which additional meters are required.

Steps taken to check system losses by stopping the losses through meters could be more effective if the good quality meters are made available in sufficient numbers.

So far as power factor is concerned, it is ensured that all new connections are released only if capacitors of suitable capacity are installed by the consumers. It has been observed that consumers do not impart much importance to this aspect. However, efforts are being made to educate the consumers regarding advantages of installing the capacitors. As regards those consumers where capacitors had not been installed initially they have been served with notices to provide capacitor.

The demand factor is a ratio of simultaneous maximum demand of all the appliances and the total connected load installed in the consumers premises. Although this is primarily the purview of the consumer yet it is noticed that generally the demand factor for a particular type of industry remains the same.

(c) Full assistance sanctioned by REC has already been drawn against 10 numbers SIC schemes. All 10 numbers schemes have been completed and practically achieved their targets. Consequently, there is voltage improvement in the area under R.E.C. schemes.

(d) Almost in all the schemes, the variation against HT lines, augmentation of shifting of distribution transformers at load centres is very less and the same is due to the actual field conditions, which are as below :—

1. SIC, PEHOWA (CODE NO. 050075)

In order to energise 2 Nos. new 33 KV and 132 KV Sub-Station at Malikpur and Thana under the scheme, the Board has energised 10 Kms. of 33 KV new line against a scheme provision of 27.50 KMs. The reason for less progress is that the provision was on higher side but 10 Kms. 33 KV line was actually required to energise these S/Stations. The targets of shifting of Transformers to load centre could not be achieved, because the field conditions were not favouring, such as non-availability of land etc.

1. SIC, REWARI (CODE NO. 050084)

This scheme covers two Nos. new 33 KV S/Stations of Dahina and Bahrauli. The Board has energised 33 KV Sub Station, Dahina and 12 Kms. 33 KV line was required to energise this Sub Station. Instead of 33 KV Sub Station, Bahrauli, the Board has augmented JLNC 2 Sub Station with additional Transformers capacity of 4 MVA and thus 12 Kms. of 33 KV line was dropped.

From the review of latest progress, it has been found that against the target of 38,415, 47,964 number LT capacitors were installed by the end of 9/83."

The latest position of year-wise line losses was stated to be as

under—

Year	%age of line losses
1985-86	19.84
1986-87	20.62
1987-88	25.40
1988-89	26.30
1989-90	29.19

It was noticed that the line losses in Haryana were higher than those of most of other States. On the basis of comparative data supplied by the Board upto 1987-88, the Committee noted that the line losses in Haryana during 1987-88 were next to J&K, Kerala and U.P. only while in all the other States these were lower. In States like Maharashtra, Punjab and Tamil Nadu, these were only 14.31 percent, 18.39 percent and 18.55 percent, respectively.

The higher percentage of line losses was attributed by the Board to (i) overloading of transmission system (ii) theft of energy and (iii) larger network of transmission and distribution lines due to emphasis on rural supply.

It was stated by the representative of the Board that a case study regarding reduction of transmission and distribution losses was conducted in Ambala/Kaithal Op. Circles during March, 1988—February, 1990. The final report of the study was placed before the Board in its meeting held on 30-8-1990 and on consideration of the fingdings, the Board decided as under—

"(i) Necessary instructions may be issued to restrict the size of transformers to 25 KVA for giving new tubewell connections and no augmentation be done to the existing transformers for release of new tubewell connections.

(ii) The installation of LT capacitors should be made mandatory before releasing any tubewell connection. Wherever the consumer does not install LT capacitor, the connection should be released only after installing a capacitor and to recover rent from the consumer.

(iii) The findings of the study should be circulated to all the field officers and they may be advised to implement the suggestions for reducing the line losses."

Accordingly, necessary instructions had been issued to the concerned authorities in the Board for implementation.

It was also stated that required action is taken against the defaulters in cases involving theft of power.

The Committee are greatly concerned about the heavy losses in transmission and distribution of energy which were on the increase from year to year. Besides causing hardship to the consumers, these involve loss of revenue to the Board and consequently affect its budgetary position.

The Committee are also of the view that theft of power was normally not possible without the connivance of the officers/officials of the Board.

The Committee urge that stringent steps be taken to bring the line losses to the minimum possible extent, if not to eliminate them altogether.

The Committee recommend that deterrent punishment be imposed on defaulters for theft of power. The Board should take steps that an officer/official, in whose jurisdiction the cases of theft occur frequently or occur on a large scale, is held responsible and strict action taken against him .

REPORT ON THE

REPORT OF THE COMPTROLLER AND AUDITOR GENERAL OF INDIA FOR THE YEAR 1982-83 (PARAGRAPHS 7.7 & 7.8)

Paragraph 7.7—Working of PANIPAT THERMAL PROJECT

7.7.1.3. Stage-III

9. Two more units of 110 MW each were planned under the third stage of the Project to meet deficit of power in the State, for which the project report involving a capital outlay of Rs. 80.00 crores was approved by the Board in Oct 1977. The Planning Commission approved the Project in March 1979 with a capital outlay of Rs. 78.26 crores. Subsequently (April 1980) the Board proposed installation of two units of 210 MW each. In May 1980 the Central Electricity Authority advised the Board to instal only one unit of 210 MW for which a revised feasibility report was prepared in August 1980 and approved by the Central Electricity Authority (CEA)/Planning Commission in August/September 1981 with estimated capital outlay of Rs. 1,11.10 crores. In December 1982, the capital cost was, however, revised to Rs. 1,47.00 crores due to (i) Provision of a new coal handling plant with two wagon tipplers instead of a mechanical tippler and a manual tippler, supported by the facilities already available under stage-I and II, (ii) Provision for acquisition of additional 50-60 acres of land, (iii) expansion of railway sidings; and (iv) higher cost of turbo-generator and boiler. Keeping in view the then prevalent cost of 210 MW units, the revised estimate of Rs. 1,47.00 crores was considered (March 1983) low by the Planning Commission, which had asked the State Government to furnish revised cost; this was yet (October 1983) to be worked out.

The two units under this stage were expected to start functioning in 1982-83 and 1983-84, but with the changed scheme, the one 210 MW unit was planned (April 1980) to be commissioned in December 1984. The commissioning schedule was subsequently revised to December 1985, and this also was considered (March 1983) doubtful by the Planning Commission due to delay in placement of orders for long lead items, and shortfall in civil works. The commissioning schedule was again revised (August 1983) to December 1986 reportedly due to (i) backing out of a firm from the structural steel contract ; (ii) non-availability of low heat cement; and (iii) paucity of funds.

In their written reply, the Department/Board stated as under :—

"As per the latest appraisal done at the time of Annual Plan discussions in 1/86 with the working Group of Planning Commission Unit-5 of Stage-III is scheduled to be commissioned by 3/88.

The contracts for all the mechanical/electrical equipment except a few short delivery items have been finalized. Civil works

of all the activities have been started at site. The erection of boiler was started during 11/84 and the first mile-stone of Boiler i.e. Boiler Drum lifting has been achieved during 8/85. The revised cost estimates has not been approved yet. However, the total cost of the Project, as indicated in the Annual Plan document of 1985-86, is likely to be Rs. 22,400 lacs. The revised cost estimates will be prepared on actual cost basis on completion of the project work and will be submitted accordingly to the Central Electricity Authority."

In reply to a supplementary question, the Department/Board stated as under :—

"Unit-V of Stage-III of P.T.P.P. scheduled to be commissioned by 3/88 has been synchronised on oil on 28th March, 1989 and coal fired on 31-10-89. The main reasons for delay in commissioning of the unit is due to delay in supply and erection of coal Handling Plant by M/s Davy Ashmore & shortage of funds"

During the course of oral examination, it was stated by the representative of the department/Board that unit-V of stage-III of P.T.P.P. was functioning for the last one week at 80-90 per cent of its installation capacity and producing about 44/45 lac units of power per day.

To a question whether any penalty had been imposed on the firm M/s Davy Ashmore for the delay in supply and erection of coal Handling Plant, it was stated that this point would be considered by the Board after the work of construction of second stream to transfer coal to the boiler had been completed by the firm.

The Committee recommend that the decision taken in the matter be intimated to the Committee.

7.7.3.1. *Performance (Stage-I Units-I and II)*

10. The plant consisting of two turbo-generators and boilers supplied by BHEL having a total installed capacity of 220 MW are under operation from November 1979/March 1980.

The following table summaries performance of the plant for the three years upto 1982-83 .—

Sr. No.	Particulars	1980-81	1981-82	1982-83
1	2	3	4	5
1.	Installed capacity (MW)	220	220	220
2.	Average load (MW)	73.96	85.60	78.98

1	2	3	4	5
3.	Anticipated generation (Mkwh) (as per annual estimates)	1,045.44	1,045.44	1,045.44
4.	Gross generation during the year (Mkwh)	647.879	749.885	691.826
5.	Auxiliary consumption during the year (Mkwh)	122.465	129.309	118.027
6.	Percentage of auxiliary consumption to gross generation	18.9	17.24	17.06
7.	Generation per KW of installed capacity (Mkwh)	2,945	3,408	3.145
8.	Percentage of gross generation			
	(a) Installed capacity	33.62	38.91	35.90
	(b) anticipated generation	61.97	71.73	66.18
9.	Hours of operation			
	Unit-I	4,819	6,026	3,825
	Unit-II	5,151	5,512	5,647
10.	Availability rate (percentage of actual operation hours to total hours in a year)			
	Unit-I	55.01	68.79	43.66
	Unit-II	58.80	62.92	64.46

In their written reply, the Department/Board stated as under :—

"(i) The percentage of gross generation during the various years is as under :—

Sr. No.	Year	Plant load factor
1.	1980-81	33.73%
2.	1981-82	38.91%
3.	1982-83	35.89%

The various reasons for low generation yearwise are as under :—

Year 1980—81

Unit—I

(i) Outage of unit-I from 1-5-80 to 18-5-80 for charging of hydrogen.

(ii) Checking of Ash handling plant for 5 days during 5/80.

(iii) Failure of both the BFPS from 18-9-80 to 21-10-80.

(iv) Leakage of hydrogen from the generator from 9-12-80 to 15-12-80.

(v) Shortage of coal during January, 1981.

(vi) Frequent Trippings on the units.

Unit—II

(i) Barring gear damaged from 16-5-80 to 28-5-80.

(ii) Frequent choking of Coal due to wet Coal.

(iii) The fire on the boiler front caused damage to Boiler furnace insulation from 8-9-80 to 17-9-80.

(iv) Repair of economiser supports from 18-12-80 to 22-12-80.

Year 1981—82

Unit—I

(i) Hydrogen gas leakage, repair of economiser tube pent house leakage and boiler inspection from 27-11-81 to 8-12-81.

(ii) Condensor tube leakage from 5-2-82 to 15-2-82.

(iii) The water wall tube leakage (Twice).

(iv) Excessive trippings.

Unit—II

(i) Condensor tube leakage (Twice) from 29-6-81 to 6-7-81.

(ii) Leakage of seal oil from the generator.

(iii) Leakage in economiser tubes and the turbine bearings from 12-10-81 to 31-10-81.

(iv) Leakage in water wall tubes of furnace from 7-2-82 to 12-2-82.

(v) Leakage in cold reheat line from 2-3-82 to 4-3-82.

Year 1982—83 :

Unit—I

(i) Water wall tube leakage from 1-4-82 to 4-4-82.

(ii) Leakage in valve S-26, and EBD valve jammed from 21-6-82 to 23-6-82.

(iii) Unit was under capital mtc. from 25-7-82 to 18-11-82.

(iv) High viberation on turbine bearing of Unit-I.

(v) Superheater steam leakage from 2-2-83 to 16-2-83.

(vi) Waterwall tube leakage from 19-3-83 to 23-3-83.

Unit—II

(i) Inspection of boiler furnace from 1-4-82 to 18-4-82.

(ii) Puncturing of susperheater tubes from 28-5-82 to 31-5-82.

(iii) To attend M.P. bottom Flange & governing system from 18-6-82 to 30-6-82.

(iv) H2 leakage from 24-8-82 to 27-8-82.

(v) Unit remained under shut down from 4-11-82 to 31-11-82 to repair the damaged wind box.

(ii) The % of generation during the years 1983-84 & 1984-85 was as under :—

Sr. No.	Year	P.L.F.
1.	1983-84	32.75%
2.	1984-85	39.86%"

In reply to a supplementary question, the Department/Board stated as under :—

"(i) Weak and crucial areas of Stage-I and Stage-II requiring modifications to give sustained generation have been identified and modification of the related equipment has been undertaken. The deteriorating quality of coal received at the plant and the limited capacity of coal handling plant and coal mills of Unit-I & II (which are of 1970 design) have been the main constraints in improving generation and achieving the required P.L.F. during these years. M/s BHEL, who supplied the Coal Handling Plant were contacted for up-rating the plant and on their advice renovation work of Coal Handling Plant has been undertaken. The renovation programme comprises of 117 activities. Out of which 51 have been completed upto 31-8-89. The work on remaining activities has also been started and is likely to be completed by March, 1991. The completion of renovation works as stated above has helped in reducing trippings, as is evident from the following detail of trippings

before R&M programme and after R&M programme :—

BEFORE R&M PROGRAMME				AFTER R&M PROGRAMME			
Year	No. of trippings		Total	Year	No. of trippings		Total
	Unit-I	Unit-II			Unit-I	Unit-II	
1	2	3	4	1	2	3	4
1979-80	110	4 (Commissioned on 27-3-80)	114	1985-86	107	89	196
1980-81	225	217	442	1986-87	78	116	194
1981-82	193	180	373	1987-88	34	87	121
1982-83	120	160	280	1988-89	60	153	213
1983-84	140	83	223	1989-90 (Upto 11/89)	26	33	59
1984-85	87	128	215				

(ii) An expenditure of Rs. 782.84 lacs has been incurred under Central Plan and Rs. 101.45 lacs under State Plan (upto 31-8-89) on Renovation and Modification activities of Stage-I (Unit-I & II).

(iii) An expenditure of Rs. 55,60,932.24 had been incurred on overhauling of Unit-II during the period August, 1983 to January 1984."

It was stated during the course of oral examination by the representative of the Board that except for three activities under the Central Plan and two under the State Plan, all the activities relating to the P.T.P.P. had been completed. The remaining activities would take about two years more to complete but the Board was satisfied with the progress of completion of R&M works.

It was further stated that after the R&M programme, there had been vast improvement in the number of trippings and outages as was evident from the figures for 1989-90 and it was expected that these would go still down with stabilised working and taking other required steps.

It was also stated that the expenditure incurred on R&M of units I & II under the Central and State Plans upto 10/90 was Rs. 805.56 lacs and 101.45 lacs, respectively.

The Committee recommend that the required steps be taken at the earliest and the trippings and outages brought down to the minimum possible extent and the achievement made in this behalf in subsequent years be intimated to the Committee.

7.7.3.5. Over payment for coal

11. For its coal supply, the plant was linked with Singrauli coalfields through Coal India Limited (CIL) up to November 1981; the Board

paid the price of coal as per grade of coal stated in the bills preferred by CIL. In November 1981, the Board started its own analysis for determining the grade of coal received. Since the coal was received against advance payment, and the quality of coal received was found to be of lower grade, the Board preferred a claim of Rs. 19.55 lakhs in February 1982 on CIL for difference in price of coal actually received and the quality of coal for which advance payment was made. The claim was rejected (March 1982) on the ground that CIL were not bound to accept the coal analysis done by thermal authorities in the absence of a joint sampling agreement. Instead of finalising an agreement for joint simpling system, the Board even abandoned the conducting of chemical analysis of coal received after March 1982 and continued paying as per grading specified in the bills raised by CIL.

Although no joint sampling system has yet been finalised, the Board in August 1982 of its own entered into a contract (for one year with effect from 15th September 1982) with a private firm for collection of samples of coal loaded in wagons from various collieries and forwarding them for analysis at the project at the following rates :

Drawal of coal samples	10 paise per tonne
Transporation charges for delivery of samples by messenger	Rs. 175 per trip subject to minimum of 4 trips in a month.
Supervision of loading	15 paise per tonne.

With the introduction of sample collection system as above, the system of analysis of coal and determination of its grades was re-started in the project's laboratory on 14th September 1982. As a result, about 80.263 tonnes of coal carried grade, by 1343 wagons were found to be of inferior grade, which were also paid for as per grades specified in the invoices which meant total excess payment of Rs. 11.24 Lakhs. The claims for adjustment of these excess payments were lodged from time to time with CIL which refused (January 1983) to entertain the claims in the absence of any agreement.

Meanwhile, an amount of Rs. 16,980 out of a total claim of Rs. 30,396 was paid (March 1983) to the private firm for drawal of samples and their delivery to the project authorities.

In their written reply, the Department/Board stated as under :—

"Because the claims prepared for the said period were unilateral and were straightway rejected by M/S CIL. To get over claims entertained, joint sampling at the colliery end was essential, other claims thus are not accepted.

The chemical analysis of coal have never been discontinued irrespective of the fact whether the claims were accepted or not by C.I.L.

The CIL refused to accept these claims on the grounds that these were for individual grades and no credit for the higher grade of coal was given to them.

Any how they have now agreed to accept the claims on the basis of monthly weighted average/collieries wise/fieldwise, after agreement with CIL on joint sampling.

It is quite justified as after the appointment of private firm, there was quite improvement in the quality of coal and diversion was minimum as the party was supposed to have the liasion with the Railways. Moreover, the amount spent on the firm for the collection of samples shall save crore of rupees of the Board as the CIL is going to finalize over claim upto 3/85 i.e. upto the contract agreement of the party very shortly. The case for settlement of claims with M/S CIL is under active consideration of the Board. The private firm has been discontinued w. e. f. 1-4-85 as the Board has entered the new agreement w. e. f. 1-3-85 and M/S CIL has posted the representative at per end."

In reply to a supplementary question, the Department/Board stated as under :—

"(i) No final decision has been taken in this regard so far. The case is still pending.

(ii) After execution of the agreement, the payment to M/s CIL is made on the basis of coal analysis report of P.T.P.S., Laboratory. The arrangement is working satisfactorily."

During the course of oral examination, it was stated by the representative of the Board that several issues were involved in this case which were being discussed in meetings held with the representatives of CIL, the last meeting having been held in June, 1990. While some petty matters had been resolved, important matters still remained to be settled.

The Committee recommend that the pending issues be sorted out at the earliest and the final outcome of the case be intimated to them.

7.7.3.7. Delay in recovery of penalty

12. For the purpose of unloading of coal from covered rail wagons which cannot be handled by the wagon tippler installed in the coal handling plant, as also to quicken the pace of unloading of wagons when rail rakes are received in quick succession so as to avoid demurrage, work order was placed upon a firm 'A' in September 1980 for one year for (i) unloading of coal from wagons at Rs. 2.25 per tonne; and (ii) loading of coal into hopper at Rs. 6.00 per tonne.

The contractor who unloaded 10,122 tonnes of coal from wagons loaded only 389 tonnes into hopper from 20th September 1980 to 9th November 1980 giving a performance of about 4 percent of the quantity contracted for which led to imposition of demurrage charges of Rs. 1.86 lakhs besides accumulation of coal on the rail tracks. Without serving firm 'A' with a notice as required under "Purchase Regulations of the Board", the work was awarded to firm 'B' in November 1980, after inviting short-term tenders, at the risk and cost of firm 'A', at the rate of Rs 5.56 per tonne for unloading from wagons and at the rate of Rs. 14.44 per tonne for loading into hopper.

A claim for Rs. 1.43 lakhs covering the extra expenditure of Rs. 1.34 lakh on unloading from wagons and loading into hopper, and Rs. 0.37 lakh on demurrage reduced by Rs. 0.28 lakh (being the value of work done by firm 'A' · Rs 0.25 lakh and its cash security of Rs. 0.03 lakh) was preferred on firm 'A' in January 1982 and is still (April 1983) remaining unrecovered.

In their written reply, the Department/Board stated as under :—

"The case is with the arbitration Court. The decision of the arbitrator is still awaited. Rs. 1,43,293.90 due to the loss suffered by the Board due to unsatisfactory work of firm 'A' is still outstanding."

The representative of the Board, during the course of oral examination, stated that the Arbitrator had held two sittings and as stated by him it would take him two-three months more to give his decision in the matter. He, however, promised to send a note giving the detailed position in this behalf.

The Department/Board subsequently intimated as under :—

"(i) In this case, because of default of the contractor, HSEB had got the work done from another contractor at the risk and cost of the former. The claim of HSEB became due by the end of 1981, when the work was executed by the Subtitute Contiactor and claims were lodged by the HSEB in January 1982 and finding no response to the notices from the defaulting contractor, the Arbitrator was appointed by the competent authority on 20-7-83.

(ii) The present position of the case is that evidence of HSEB is complete, whereas the evidence of the contractor is yet to be recorded.

(iii) The matter could not be finalised due to the reason that the Arbitrators under-went frequent changes because of transfers of the incumbents occupying that office. Partly, it was due to non co-operation of the defaulting contractor and also because of other compelling circumstances.

(iv) The dates on which hearings took place are given below :—

28.3.84	Ist sitting
4.6.84	2nd sitting
6.8.84	3rd sitting
14.5.85	4th sitting
25.2.86	5th sitting
30.12.86	6th sitting
30.12.86 to 20.9.88	(Several sittings which were abortive).
26.9.88	7th sitting
4.10.88	8th sitting
18 10.88	9th sitting
27.10.88	10th sitting

Extensions from time to time have been obtained from the Court and fresh application for extension of time is being filed urgently. The next date of hearing is 7.1.91. Efforts will be made to dispose off the case within 4 months of the new extension sought from the Court."

The Committee observe that this matter had been pending arbitration for the last about 8 years and it appears that no serious efforts have been made to get it finalised.

The Committee recommend that the matter be pursued vigorously and the result of the arbitration proceedings be intimated to them.

7.7.5 Manpower analysis

13. The project report of stage-I did not lay down any standard or norms for the deployment of staff for operation and maintenance of the plant. However, the project report of Thermal Power Station, Faridabad (120MW) contemplated deploying 2.35 employees per MW of installed capacity. The project proposals for stage-II of Panipat Project (220 MW), presently under construction, envisaged engagement of 425 employees for its operation and maintenance which meant lesser staff per MW of installed capacity compared to that provided in the Faridabad Power Plant, as it worked out to 1.93 employees per MW.

As against this, the number of employees for operation and maintenance of stage-was 2,523 as on 31st January 1983, which worked out to 11.47 employees per MW of installed capacity (220 MW).

The Board which considered (June 1981) that the expenditure on establishment in the plant was too high desired the Member (Technical) to review the pattern of personnel employed and suggest optimum staffing pattern. A report submitted by the Member (Technical) in January 1982 was under consideration (September 1983).

The Chief Engineer, Panipat Thermal Project while obtaining sanction of Thermal Standing Committee (May 1983) for creation of technical posts for training in running and maintenance of the two units (110 MW each) under stage-II, also felt, that the optimum staff requirement for thermal Plants was 2 men per MW yet no person out of the existing strength was proposed to be diverted for the said training.

In their written reply, the Department/Board stated as under :—

"(i) In absence of any staffing pattern sanctioned by the Secretary, HSEB, the staff was employed from time to time as per need of works. So the question of excess employment does not arise. After the finalization of the staffing pattern as per the orders of the higher authorities, the staff working as casual labour on daily wages have been diverted to various field office of operation North and South as such the compliance of Board's authorities order are made.

The staffing pattern was not finalised till that time so the staff was not diverted out of the existing strength.

The staffing pattern for the technical staff for 3×110 MW Unit has been

sanctioned vide Secretary, HSEB O/o No. 2843/Cadre dated 22-5-86 while that of non-technical staff, it has been sanctioned vide O/o No. 2897/Cadre dated 27-9-85. The staff sanctioned under these two office orders for 3X110 MW units are 1280 and 293 respectively. In addition, 200 posts of technical staff have been sanctioned vide Secretary O/o No 2950/Cadre dated 23-4-86 for operation and maintenance of unit No. 4. 423 persons working as casual labour on Daily Wages basis in the plant have been diverted to various field offices of (OP) North and (OP) South Organisations. In addition's a list of another 150 surplus staff belonging to regular and work charged category stands submitted to Secretary, HSEB for their posting instructions. These officials will be relieved as soon as their posting orders are received. About 48 to 50 persons working as helpers, T/Mates etc. have been selected as LDC/Meter Readers and absorbed in various offices of the Board. It is also pertinent to point out that 200 No. staff have been transferred on Unit No. 3 for its operation. This unit was synchronised on 1.11.85 and the whole operation staff has been supplied by the existing strength in O&M Organisation."

In reply to a supplementary question, the Department/Board stated as under :—

"**The number of surplus personnel diverted over the years is as under :

Year	Skilled	Unskilled	Total
1985-86	—	403	403
1986-87	63	65	128
1987-88	—	35	35
Total	63	503	566"

The representative of the Board stated during the course of oral examination that after 1987-88, 231 more unskilled labour had been withdrawn from the projects. It was also stated that it was the unskilled labour which was more in surplus.

The Committee recommed shat the staff found in excess of the requirement on the projects be diverted to other works on top priority basis where their services could be gainfully utilised so that unnecessary expenditure being incurred in the form of wages etc. could be avoided.

7.7.8.3—Non refund of Central Sales Tax

14. The Panipat Thermal Power Project initially pays Central Sales Tax along with cost of purchase of steel at 8 percent to the SAIL in advance, and on submission of 'C' form, gets a refund of 4 percent. Such advances aggregating Rs. 20.79 lakhs in respect of three invoices of October, 1979, January, 1980 and March, 1980 for purchase of steel were made to the Bombay office of SAIL and steel was supplied by the Cochin office. As such, claims for refund of sales tax (4 percent) should have been lodged upon Cochin office, but 'C' forms claiming refunds of

Central Sales Tax were sent to Bombay office, on 7th January, 1980, 30th March, 1980 and 26th May, 1980. The mistake was detected by the project authorities in January, 1981 and 'C' forms were sent to Cochin office in February, 1981, but these were not entertained by the Cochin office on the plea that their sales tax assessment had already been over. Thus, the mistake in not claiming refund of sales tax from the appropriate source resulted in an extra expenditure of Rs. 0.77 lakh.

In their written reply, the Department/Board stated as under :—

"The order was placed on M/s. SAIL's office, Bombay and the payments were also made to that office. Consequently, the form 'C' for concessional levy of Central Sales Tax was sent to Bombay office. Thus, none can be held responsible for the loss of Sales Tax concession. In fact, the Steel Authority of India had to receive the shipment of imported material at Bombay itself and had to arrange supplies to HSEB from their Bombay office but as per their letter No. 4316 dt. 13.10.81 shipment were diverted to Cochin from Bombay by the SAIL and the supplies were, thus made from Cochin. This was an internal arrangement of the SAIL. Howerer, on our pursuance with the SAIL, Bombay and Cochin, their Cochin Branch SAIL office preferred a claim for refund of excess payment of CST from Asstt. Commissioner of Sales Tax (Assessment) Aruna Kulam as intimated vide their letter CS. Acctt. 6/82-83/6336 dated 15.2.83. Unfortunately this refund case has not so far been finalized. The case is however being pursued for finalising the refund claim."

In reply to a supplementary question, the Department/Board stated as under :—

"An official was deputed by the Chief Engineer (Const.), PTPP to Cochin in 10/88 to get the case of refund of excess CST paid settled. The SAIL office assured that an appeal in this regard will be filed by them with the Deputy Commissioner of Sales Tax. The case is being pursued with SAIL Cochin and last reminder in this regard has been issued on 4.12.1989."

The Committee recommend that the matter be pursued vigorously and the final decision taken in the matter be intimated to them.

Paragraph 7.8—Implementation of New-20 Point Programme

7.8.4 System Losses.

15. Another major factor which contributed to commercial losses were system losses. System losses comprise of (i) energy dissipated in the system and (ii) unacconted loss due to pilferage, inaccurate meter reading and compatations, etc. Energy to certain extent dissipates right from the generating point to the load receiving end, owing to the inherent characterstics of the equipment used for transformation, transmission and distribution of power. The extent of energy losses depends largely on the areas served, the load pattern planning and designing of the system. The Central Water and Power Commission (CWPC), in April, 1967, had recommended for acceptance and adoption of losses at 4 percent for extra-high-tension transmission (220/132/66KV) and 11 percent for sub-transmission and distribution losses i.e., 15 per cent in the system as a whole.

The Rajadhyaksha Committee on Power strongly emphasised (September, 1981) that before making any new investments on generation capacity highest priority should be given to the reduction of line losses. Under the New 20-Point Programme also special efforts were proposed to be directed to cut down the system losses. The table below shows the particulars of power generated, power purchased, power used in auxiliaries, sales out side the State, Power used in own projects, net power, available for sale, power actually sold and the trend of power lost in transmission and distribution, vis-a-vis, line losses during the nine years upto 1982-83 :

Year	Power generated	Power purchased	Total power	Less used in auxiliaries.	Sales out side State	Net power available for sale within State	Power sold within the State	System losses	Percentage of losses
				(in Mkwh)					
1974-75	1793	343	2136	40	484	1612	1222	390	24.2
1975-76	2682	206	2888	63	729	2096	1625	471	22.5
1976-77	2881	287	3168	90	656	2422	1884	538	22.2
1977-78	3000	78	3078	103	482	2493	1975	518	20.8
1978-79	3830	116	3946	76	591	3279	2627	652	19.9
1979-80	3972	147	4119	119	519	3481	2750	731	21.0
1980-81	4269	120	4389	205	835	3349	2556	793	23.7
1981-82	4768	147	4915	240	886	3789	2981	808	21.3
1982-83	4808	190	4998	230	620	4148	3326	822	19.8

The system losses in excess of 15 percent in financial terms at average selling price per Kwh for the five years upto 1982-83 resulted in a revenue loss of Rs. 27.93 crores as tabulated below :—

Year	Average selling price per Kwh (Paise)	Total line losses (Mkwh)	Loss in excess of 15 percent (Mkwh)	Total revenue loss (in excess of 15 percent (Rs. in lakhs)
(1)	(2)	(3)	(4)	(5)
1978-79	20.01	652.213	160.335	320.84
1979-80	20.51	731.102	208.881	428.42
1980-81	25.09	793.251	291.020	730.17
1981-82	28.30	808.246	239.058	676.35
1982-83	32.00	822.00	199.104	637.13

With a view to bring down line losses, the Board took up certain schemes of system improvement, the progress of which is given below : —

(i) Ten schemes of system improvement, which, interalia provided for augmentation of 33/11 KV Sub-Stations, construction of new lines (33/11 KV) and distribution transformer centres with financial assistance of Rs. 6,94.97 lakhs were sanctioned by Rural Electrification Corporation Limited (REC) during 1977-78 and 1978-79. The schemes were to be implemented within a period of two years from the date of sanction. But the same were completed only by September, 1983 at a total expenditure of Rs. 12,39.25 lakhs. Reasons for delay in the completion of the schemes and increase in expenditure has not been investigated (November, 1983).

(ii) Two schemes estimated to cost Rs. 99.19 lakhs for purchase and installation of 31415 LT capacitors in five divisions were sanctioned by REC in December, 1977. The schemes were required to be implemented within a period of two years. These capacitors were procured during December, 1977—November 1981 and were installed by September, 1983. Information as to whether the installed capacitors were in circuit or not was not available.

(iii) The Board undertook a study of the system losses on a few selected lines in June, 1979, and the following factors were found to be mainly responsible for heavy losses .—

(a) Stopped, tampered and poorly maintained meters ;

(b) Low power factors;

(c) Long LT lines/circuits and smaller size of conductors/cables etc.,

Excessive resistance of the circuits was confirmed by actual measurements of voltage drop at the time of peak load and was observed to be 35 to 40 volts. i.e. 14 to 16 percent as against the permissible limit of 5 percent under the Indian Electricity Rules, 1956;

(d) Under utilisation of installed transformer capacitors, i.e., unsatisfactory voltage condition in distribution system; and

(e) Use of induction meters having very low power factors in rural areas (incidence of loss was highest, i.e. 40 percent in case of rural feeders catering agricultural loads).

No new scheme to cut down the line losses was, however, undertaken on the basis of this study of June, 1979 as also under the New 20-Point Programme. However, the following points were noticed —

(a) Power is transmitted from grid to sub-stations through a net work of 220/132/66/33 KV lines and from there to the consumers through 11 KV feeders. The Board has provided metering equipments on import and export points for calculating the net power received in the State. Metering on 132/66/33 KV lines at the outgoing ends is provided only

at certain places. However, the metering equipment on the outgoing 11 KV feeders exists at all the sub stations. From there, energy meters are installed at the premises of individual consumer for billing. Since the Board does not have system/record to work out separately the extent of transformation/transmission and distribution losses at intermediary stages, the total system losses (being the difference of units made available for sale from the grid and the units actually billed to the consumers) are worked out. The Board decided in April, 1981 to sectionalise the consumer ledgers on 11 KV feeders basis so as to ascertain the extent of line losses on a scientific/rational basis. This would also help in demarcating the pockets with abnormal line losses and in initiating remedial measures. A study of the quarterly statements of feeder-wise line losses received from all the nine circles of the Board revealed that the line losses were very high in the following feeders :—

Name of feeder	Percentage of losses		Period to which these losses related
	Minimum	Maximum	
(1)	(2)	(3)	(4)
1. Tumra	18.2	74.0	July, 1981 to Dec., 1981.
2. Rural feeder Nilokheri	34.0	59.0	April, 1981 to July, 1981.
3. Gohana Sub-Divn. 9 Nos.11 KV feeders)	15.4	50.4	Dec., 1981 to July, 1982.
4. Bond	20.5	47.5	July 1981 to Jan., 1982.
5. Tohana Sub-Divn. (all feeders)	18.0	42.0	June 1981 to August, 1982.
6. Pathredi	17.9	40.8	July 1981 to March, 1983.
7. Rasalput	31.6	38.6	July, 1981 to Sept., 1981.
8. Durjan	19.0	30.2	July, 1981 to Oct., 1981.
9. Kashni	19.9	28.7	July, 1981 to Feb., 1982.
10. Ismaila	17.3	25.1	July, 1981 to Feb., 1982.
11. Sampla	16.3	24.4	July, 1981 to Feb., 1982.
12. Hassangarh	17.5	23.5	July, 1981 to Dec., 1981.
13. KV City-I, Jind	15.8	22.2	July, 1981 to July, 1982.
KV City-II, Jind	15.5	22.4	July, 1981 to July, 1982.
14. Annawa	18.9	36.4	July, 1981 to March, 1982.

In the case of certain other feeders in respect of which only monthly statements were available, it was further seen that the losses there were also quite high as will be seen from the table below :—

Name of the feeder	Month	Percentage of line losses
(1)	(2)	(3)
1. Karhans	May, 1981	79.5
2. Sirsal	July, 1981	55,8
3. Balu	July, 1981	51.4
4. Mohna	September, 1981	44.2
5. Katlehri	July, 1981	42.4
6. Bachur	July, 1981	40.3
7. Shahpur	July, 1981	37.0
8. Padheri	March, 1983	32.9
9. Sitamai	July, 1981	32.0
10. Khadar	September, 1981	30,1
11. Kachwa	July, 1981	31.0
12. Bakla	March, 1983	29.9
13. Birchpur	July' 1981	27.0
14. Uklana Sub Divn.	July, 1982	26.0

(b) The Board, in September, 1982, instructed all the Superintending Engineers to prepare an 'Action Plan' so as to cut down the line losses. The Action Plan. interalia, required :

(1) locked premises to be opened and billed on the basis of actual reading;

(2) defective/dead stop meters to be replaced immediately;

(3) a close watch to be kept over the activities of unscrupulous consumers stealing energy;

(4) Site checking of meters/connected load strictly according to norms fixed ;

(5) preparation of schemes for augmentation/bifurcation of lengthy/ over loaded feeders; and

(6) installation of LT/HT capacitors and to ensure that these are in working order.

It was, however, seen that till November, 1983, no such Action Plan had been formulated.

(c) Stopped, tampered and poorly maintained meters also play a major role in increasing the line losses. In order to keep a watch over the proper working of CT/PT connection relating to large/bulk supply, the Board introduced in April, 1971, a system of site-checking of large/medium supply consumers (above 70 KW) with MDI and grid/bulk supply consumers and all other CT/CT-PT meters by a Sub Divisional Officer of the Maintenance and Protection Division once in every six months.

It was, however, noticed that the prescribed checks were not being carried out fully and there were heavy arrears in checking of meters during the three years ending 31st March, 1983 as indicated below :—

Name of the Division	1980-81		1981-82		1982-83	
	Approximate number of CT/CT-PT/ connections	Arrears at the end of the year	Approximate number of CT/CT-PT connections	Arrears at the end of the year	Approximate number of CT/CT-PT connections	Arrears at the end of the year
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panipat	325	105	533	209	277*	127
Faridabad	420	380	548	602	557	893
Rohtak	248	—	248	—	315	5
Hisar	276	348@	300	—	281	42
Gurgaon	—	—	—	—	101	1
Yamunanagar	—	—	—	—	321	194
Total	1269	833	1629	811	1852	1262

@Previous backlog.
*Due to re-organisation.

The extent of arrears ranged between 50 and 66 per cent, but the Board had not drawn for implementation any plan of action to cover up the arrears.

(d) One of the reasons for the increased line losses as attributed by the Board is the theft of energy by consumer. It has been observed in Audit that this was facilitated due to non-observance of periodic checks prescribed for various officers/officials of the Board as per Board's

circular of November, 1980. Analysis of monthly progress reports on such checks for 1982-83, received from the circle offices, revealed that prescribed norms of checks were not being adhered to and there was a shortfall ranging from 12 per cent to 94 percent by the various officers/officials as detailed below :—

Category of consumers	Average number of meters held during the year	Periodicity of checking by		
		Superintending Engineer	Executive Engineer	Sub Divisional Officers
Large Supply	935	5 percent in a year	Once in six months	Once in a month
Medium Supply	3,595	1 percent in a year	Once a year	Once in six months
Small Power	43,345	Nil	Once in 2 years	Once a year
Agriculture Sector	1,68,567	1 per cent in a year	2 per cent in a year	5 per cent per month

	Percentage of shortfall (Number)		
	Superintending Engineer	Executive Engineer	Sub Divisional Officer
Large Supply	No shortfall	40 (778)	43 (4860)
Medium Supply	Do	71 (2558)	12 (866)
Small Power	Do	90 (20344)	53 (24370)
Agriculture Sector	94 (1585)	22 (735)	71 (72061)

The Board had neither investigated reasons for the shortfall nor taken any action against the defaulting officers/officials for shortfall in their inspection.

Besides the above checking of meters by operational staff, the Board also launched a campaign by its Vigilance Wing for carrying out surprise checks of the consumer's premises without laying down any limits on the periodicity of the checks. The results of such checking conducted by Vigilance Wing, vis-a-vis checking made by operational staff during

the three years ending March, 1983 are tabulated below :—

Year	Operational Staff				Vigilance Wing			
	Number of cases detected	Amount debited	Amount realised	Percentage of realisation	Number of cases detected	Amount debited	Amount realised	Percentage of realisation
	(Rs. in lakhs)				(Rs. in lakhs)			
1980-81	2,935	1.73	1.02	59	2,485	176.97	7.92	4
1981-82	14,604	12.02	11.71	97	14,857	110.29	47.61	48
1982-83	11,646	92.93	63.30	67	8,264	123.72	34.08	34

The cases detected related to slow metering, theft of energy, unauthorised extension of load, defective/dead stop meters, wrong connections by Maintenance and Protection Wing of the Board and seals broken.

It will be seen from the above, that the pace of realisation in the cases detected by Vigilance Wing was quite slow. One of the reasons for short realisation was that the consumers contested the very basis and correctness of the additional demands raised by the Board. It has been seen that in eight cases involving Rs. 4,02,01 lakhs (in default as on 31st March, 1983) the consumers had disputed the claims and got stay orders from the Courts against recovery/disconnections. The disputes mainly arose on account of the fact that under th Electricity Act, dues relating to period beyond six months could not be claimed whereas due to delay in the detection of cases, the Board has to riase demands for the actual periods of default, exceeding six months. Secondly, under the terms of the agreement, there is no provision binding the consumer to accept the findings of the Vigilance/Operational staff which are contested by the clients.

(e) Low voltage is one of the causes of high line losses. To improve the low voltage situation, the Board in February, 1981, placed an order on a firm and received 55 capacitor banks in May, 1981 at a cost of Rs. 8.74 lakhs. In addition, 93 of the 100 capacitors banks procured in September, 1980 at a cost of Rs. 17.22 lakhs were already in stock at the time of purchase of additional 55 capacitor banks.

The capacitor banks could not be installed on 11 KV lines as the same were not suitable in view of two phase power supply during frequent power cuts, referred in paragraph 7.8.2 (i) supra (of the Report) BHEL were consulted in October, 1982 for finding out prospects of utilisation of these capacitor banks. They opined that these capacitor banks could be installed on 33/66/132 KV lines with slight modifications. Only 27 capacitors have been installed so far (June, 1983).

In their written reply, the Department/Board stated as under :—

"The percentage of system losses during the year 1983-84 were 19.56% and during 1984-85 these were 21.81%. While these losses at the all India level were of the order of 21.0% for the year 1984-85.

(i) The following were the major reasons for delay in the execution of 10 Nos. SIC schemes.

(a) The selection and acquisition of land required lengthy procedure and it was seen that in certain cases the acquisition of land could not be finalised due to dispute raised by the owners of land. The construction could be taken up only after these objections were got removed through persuation or vocation of the Courts Orders In some cases alternate sites had to be selected which delayed the commencement of the works.

(b) The construction of S/Stns. could be taken up only on availability of material. The Board have been facing shortage of power transformers and other material due to paucity of funds and as such the material could not be made available in time.

(c) Previously the construction of 33 KV works was under P&C Organisation and later on these works were transferred to REC Dte. by the Board in year 1981 with a view to expedite the completion of these works. The priority was given and the works were speeded up and got completed, subject to, however, the availability of material.

(d) Also in certain cases the sub-stations were up graded to higher capacity/voltage due to the rapid growth of the load in area such as sub stations Smalkha and Thana which were contemplated as 33 KV S/Stations in the schemes were actually constructed as 132 KV S/Stns. Thus resulting in delay.

Change in the Sub Station capacity and the delay in processing of the concerned system improvement works (as stated above) resulted into cost escalation and increase in the cost of works.

The average system losses on sub transmission and distribuiion system, have consequently come down upto 11% in 1985-86 and 1986-87.

(ii) The capacitors are in circuit. The function of capacitor is to improve the voltage level which in turn contributes to reduce the line losses.

The average system losses on sub transmission and distribution system are below 11% in 1985-86 and 1986-87.

(iii) Apart from installation of L.T. capacitors a number of other

actions as narrated below have been taken to reduce the system losses :—

(i) Installation of H.T. capacitors, at Sub-Stations and ensuring that they continued to be in working order.

(ii) Bifurcation of lengthy over loaded feeders.

(iii) Augmentation of conductor/cable sizes wherever necessary.

(iv) Improvement in the L.D. system for better maintenance and checking of mains and sub-mains.

(v) Installation of new Sub-Station and augmentation of existing Sub-Station.

(vi) Replacement of defective/dead stop/burnt meters.

(vii) Administrative action in checking of pilferage and theft of energy.

(viii) Checking of power factor, connected load and metering equipments of large supply consumers particularly industrial connections.

The above action is a continuous process as per the recommendations of the various studies conducted by the Board at well as other authorities and the progress is commensurate with the availability of funds and necessary materials. The actions as brought out above are taken by the various S/Divisions after due analysis of feeders.

(a) It is mentioned that the feeder wise consumers ledgers have been opened and necessary instructions have already been issued to the field officers vide Sales Circular No. 12/81 conveyed vide Chief Engineer/ Commercial Memo No. Ch-1/SS-68 dated 27-3-81. In pursuance to this, another sales circular No. 15/87 has been issued to field officers for meticulous compliance of the same.

(b) The following continuous steps are being taken to reduce the line losses :—

(1) Every possible effort is being made to get locked premises opened and the billing is being done as per actual readings.

(2) Due to non availability of sufficient quantity of meters all the defective/dead stoped meters could not be replaced. Even then the said meters are being replaced as and when available, either with the Board or made available by the consumer at his own cost.

(3) Steps are being taken to avoid theft of energy. The field offices have been suitably instructed and results are encouraging. Site checking of meters is more or less completed.

(4) Connected load of agriculture consumer has also been checked 100% by 31-3-86. However, voluntarily disclosure of extended load (unauthorised) facility to all the consumers has been given to regularise the same upto 30-11-1987.

(5) Schemes for augmentation/bifurcation of lengthy and overloaded feeders have been prepared and being implemented as per funds available with the Board.

(6) The H.T./L.T. capacitors are being installed.

(c) Monthly schedule for site checking of CT/PT meters is chalked out first and then the progress of the same is watched regularly. The position of checking of such meters for 1983-84 to 1985-86 is as under :—

Period	No. of connections due for checking	No. of connections checked	Balance
4/83 to 9/83	1612	894	718
10/83 to 1/84	1743	816	967
4/84 to 9/84	1889	1048	841
10/84 to 3/85	1854	1407	447
4/85 to 9/85	1709	1456	253
10/85 to 3/86	2352	2227 (including 21 Nos. connections checked twice)	146

Some times checking gangs visit the consumers premises as per schedule but due to power cut or non-availability of load at the point of checking, the gang has to return back. Efforts have been made to clear the backlog.

(d) (i) The consumers premises are checked by the various officers as per norms. But some times sudden power cuts, locked premises, non-availability of requisite load at the time of checking, unforeseen load restrictions, seasonal utilisation of energy in agricultural and some industrial connections, difficulties in mobility in far-flung areas etc. are hindrences in 100% checking of the connections. This is a continuous process of checking by various levels of officials/officers and is being done as per norms.

(ii) The checking of connections is a continuous process of checking by the field officers/officials. The checking is being done as per norms and there is no shortfall in checking now, keeping in view the above bottlenecks (explained in para (d) (i) above).

(iii) The position regarding the checking by operational staff and Vigilance staff is as under :—

OPERATIONAL STAFF

Year	No. of cases detected	Amount debited (Rs. in Lacs)	Amount realised
1984-85	8900	14.69	14.17
1985-86	7395	22.73	17.85

VIGILANCE STAFF

Year	No. of cases detected	Amount debited (Rs. in Lacs)	Amount realised
1983-84	6856	55.61	48.51
1984-85	2238	13.56	8.02
1985-86	1754	27.39	18.33

(iv) Detail of amount recoverable.

(A) OPERATIONAL STAFF

Year	Amount (in Lacs)
1984-85	0.52
1985-86	4.88

(B) VIGILANCE STAFF

Year	Amount (in Lacs)
1984-85	5.54
1985-86	9.06

(v) The Court cases are being pursued vigorously by the Board through Law Officers appointed in the Board or hiring legal services of the private advocates. Moreover the Board has appointed one Chief Engineer (Arbitration) for such arbitration cases and all out efforts are being made by the Chief Engineer (Arbitration), Negotiation Committees

to settle the disputed cases. However, these cases take long time for their settlement either in the Courts or in the arbitration/negotiation.

(vi) Most of the meters are being checked within the prescribed period except in exceptional cases such as sudden power cuts, locked premises, non-availability of requisite load at the time of checking and unforeseen load restrictions etc.

(e) (i) The L.T. capacitors amounting to capacity of 171.287 MVAR and 209.726 MVAR have been installed upto the period ending 31-3-86 and 31-3-87 respectively. The voltage after installation of the capacitors has improved.

(ii) The use of capacitors has helped in reduction of line losses. However, it may be stated that exact details can not be given particularly for use of capacitors as some other steps have also been taken to reduce the line losses. The average sub transmission and distribution losses are below the permissible limit of 11% during 1985-86 and 1986-87."

In reply to supplementary questions, the Department/Board stated as under :—

"Details of connections due for checking and actually checked by the field officers during the last three years is given below :—

Sr. No.	Name of officers responsible for checking	No. of connections due for checking during the year						No. of connections actually checked					
		1986-87		1987-88		1988-89		1986-87		1987-88		1988-89	
		L.S.	M.S.	L.S.	M.S.	L.S.	M.S.	L.S.	M.S.	L.S.	M.S.	L.S.	M.S.
						SOUTH ZONE (C.E.'OP' DELHI)							
1.	S.E.	40	30	43	25	53	23	215	79	281	55	377	102
2.	Xen	1542	2830	1740	2357	2124	2137	1159	1776	1492	1970	1531	1642
3.	S.D.O.	9252	5860	10440	4714	12744	4274	4089	5552	4894	5570	7252	5120
4.	J.E.	—	11320	—	9428	—	8548	320	6138	502	7782	539	7715
	Total	10834	20040	12223	16524	14921	14982	5783	13545	7169	15377	9699	14589
						NORTH ZONE (C.E. 'OP' HISSAR)							
1.	S.E.	34	17	36	17	34	18	42	17	33	23	74	54
2.	Xen	501	1598	554	1688	682	1703	642	1330	643	1007	904	1579
3.	S.D O.	2114	3507	2145	4004	3327	3830	1946	3950	2237	3865	3195	5513
4.	J.E.	1	6404	—	7823	1	8491	55	5899	24	6374	46	7382
	Total	2650	11526	2735	13532	4044	14042	2685	11196	2937	11269	4219	14528

The latest position of amount debited to consumers as a result of checking by operational/vigilance staff but not recoverd (year wise) is as under .—

Year	Amount detected by		Amount realised		Amount outsanding	
	(OP) staff	Vigi-lance staff	(OP) staff	Vigi-lance staff	(OP) staff	Vigi-lance staff
	(Rs. in Lacs)		(Rs. in Lacs)		(Rs in lacs)	
1987-88	52.75	62.96	20.16	11.56	32.59	51.40
1988-89	88 82	91.50	65.26	29.35	23.56	62.15

The amount could not be realised owing to the reasons that either the premises are disconnected permanently or the cases are in the Courts or with Arbitrators."

The Committee view with concern the shortfall in the checking of connections (meters) by the officers of the Board at different levels, which not only leads to malpractices but also affects the revenue of the Board.

The Committee recommend that any slackness in this respect on the part of the officials be viewed seriously and reflected in their annual confidential reports which may be kept in view at the time of allowing them increments and promotion etc.

The Committee also recommend that the cases pending in the courts or with arbitrators be pursued vigorously so that they are finalised at the earliest and the amount debited to consumers effected.

21813—H.V.S —H.G.P., Chd.

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